

THE READER

A REVIEW OF LITERATURE, SCIENCE, AND ART.

No. 197, Vol. VII.

Saturday, October 6, 1866.

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The Gentlemen selected will be required to leave this country on or about 19th November, and to engage for a period of not less than five years.

Edinburgh, 18th September, 1866.

LECTURES on MINERALOGY and GEOLOGY at KING'S COLLEGE, LONDON, are given on WEDNESDAY and FRIDAY MORNINGS, from Nine to Ten, by Professor TENNANT, F.G.S. Those on MINERALOGY begin on FRIDAY, OCTOBER 5, and terminate at Christmas. Fee, £2 2s. Those on GEOLOGY commence in JANUARY and continue till JUNE. A shorter Course of Lectures on MINERALOGY and GEOLOGY is delivered on WEDNESDAY EVENINGS, from Eight till Nine. These begin on the 10th of October and terminate at Easter. Fee, £1 11s. 6d. Mr. Tennant also accompanies his Students to the Public Museums, and to places of Geological interest in the country.—R. W. JELF, D.D., Principal.

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JOHN MURRAY, Albemarle Street.

The Edinburgh Review,

No. 254, OCTOBER.

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THERE are some ill-regulated minds to which Bishop Colenso's speculations, and the discussions they provoke, have given unequivocal satisfaction. They remember the times when they were young, and put what are called childish questions to their pastors and masters, before that true *enfant terrible* of theology had arrived at the pinafioral dignity of a sable apron. In those days such questions were put down in a very prompt manner. They were "childish;" "a child might answer them," if only it were worth while. Now there is a good deal of difference between these two kinds of puzzles. Questions which a child can answer are simple enough, no doubt; but there are many a child can put to which no answer will probably ever be found. It has therefore afforded a considerable amount of malicious pleasure to many precocious inquirers after truth, to find that, however unorthodox their early speculations may have been, at all events they were not so unpromising for the soundness of the infantine brain which devised them, as the stern sentence of folly passed upon them so soon as they became moulded into articulate speech might seem to imply. The satisfaction which the Roman boys must have had when, in strict obedience to the orders of Camillus, they laid well into that unpatriotic pedagogue, are as nothing to the delight experienced in seeing some reverend divine, who in days long gone by had explained the fossils of the chalk, for example, by "supposing" that a current of chalk miraculously permeated the Noachian Ocean during the Noachian Deluge, and imbedded the kindred of those fishes who were skimming the troubled waters safe in the Noachian Ark, for the edification and confusion at once of future generations, now writhing in the pulpit with the impotent hope of showing that "Colenso's Arithmetic" is wrong, or that the High Priest was not really expected to eat eighty-eight pigeons in eight hours. In plain English, we are not dissatisfied to find that the difficulties attending anything like a literal interpretation of the Pentateuch are now fairly recognised, and if Colenso has effected no more than this, it is no small achievement in the cause of that Truth, which proverbs assure us is mighty, and must ultimately prevail.

It was triumphantly asserted by what is called the "religious press," that Colenso's second volume had not near the same circulation as the first. Even if this were so, the inference that the public had rejected him would be very fallacious. His work might be so conclusively done, that it might seem to many a mere slaying of the slain to show that "Numbers" and "Leviticus" were no more faithful records than "Genesis" and "Exodus." For ourselves we do not remember how far the Bishop carried his "disintegrating process," or the date and person he finally considered as the Hebrew Peisistratus. His method was all-in-all. He addressed the English mind; he brought the evidence down to the level of the lowest literary jury. Such simple issues as he raised every one could understand. He has left his mark on Biblical criticism; and if the termination of his name had permitted he might already have passed into a proverb. It is often said that the Bible will and does survive all the attacks which are made upon, and all the objections which have ever been made against it. The meaning of this favourite flourish we could never understand. "To survive" is to outlive—to remain in existence when the thing survived has disappeared, and is forgotten, or as regards a sophism, is undeniably refuted. Now this is not the case. The Bible has not, indeed, been displaced from our shelves by those who find fault with its perfect accuracy. But on the other hand the objections taken to much, of not only the stories but of the morality of the Old Testa-

ment, have never been overruled or abandoned. The tares flourish along with the wheat. Nor is it a proof of the truth of the thing objected to that the objections themselves are "old." This is one of the fallacies of the word "old." When we speak of the Bible as "old" we attach the sense of venerable to the word. When we speak of the objections to it as "old" we involuntarily conjure up images of imbecility and decay. If modern sceptics only reproduce the arguments of Celsus, it is a proof, amongst other things, of their vitality and their *a priori* plausibility. In any case they still live and have power. Christianity and the Bible have no more "survived," their depreciators, because both still exist side by side, than the Established Church has survived Dissent because our Bishops still sit in the House of Lords.

We have been led to these reflections by the reproduction of a curious book, originally printed about fifty years ago. The object of the "Œdipus Judaicus" was in one respect very different from that of Colenso's investigations. The Bishop wanted to expose the weakness of the Pentateuch to the understandings of intelligent Zulus, and unreasoning Englishmen. Sir W. Drummond, writing in 1811, does not even publish his book, but says, "To a small circle I think myself at liberty to observe" . . . "I feel little inclined to make my opinions too publicly known" . . . "These are opinions which I have no wish of promulgating to the mob," &c. The process, however, of "shaking the faith" of the ordinary Christian mind is being carried out by so many able pens that the Editor of this remarkable, but almost unknown, book need not fear the reproach of being less scrupulous than his author. It was not from a desire to keep truths entirely to a few learned men, but because he would not "expose himself to the invectives of offended bigotry, and to the misrepresentations of interested malice," that Sir W. Drummond declined publication. The time has come when, if alive, he would have acted differently, and both editor and publisher have done well in placing these curious speculations within the reach of 250 new readers.

Before we give an account of the main purpose of the "Œdipus Judaicus" we cannot help quoting some passages from Sir William's preface:—

The manner in which the Christian readers of the Old Testament generally choose to understand it, appears to me to be a little singular. While the Deity is represented with human passions, and those none of the best;—while he is described as a quarrelsome, jealous, and vindictive being;—while he is shown to be continually changing his plans for the moral government of the world;—and while he is depicted as a material local God, who dwelt on a box made of Shittim wood in the temple Jerusalem;—they abide by the literal interpretation. They see no allegory in the first chapters of Genesis; nor doubt, that far the greater portion of the human race is doomed to suffer eternal torments, because our first parents ate an apple, after having been tempted by a talking serpent. They find it quite simple, that the triune Jehovah should dine on veal cutlets at Abraham's table; nor are they at all surprised, that the God of the universe should pay a visit to Ezekiel, in order to settle with the Prophet, whether he should bake his bread with human dung, or with cow's dung. In these examples the Christian readers of the Hebrew Scriptures understand no allegory. They believe the facts to have happened literally as they are stated; and neither suspect, nor allow, that the language of the sacred writers upon such occasions may be entirely figurative. Very different is their mode of interpreting these same Scriptures, when they think there is any allusion made to the kingdom of Christ. Then they abandon the literal sense without scruple, and sometimes, it may be thought, without consideration. The Rabbins learn with astonishment, that the Song of Solomon, for example, is a mere allegory, which represents the love of Jesus for his church; and that the lady, whose navel was like a round goblet, not wanting liquor,—whose belly was like a heap of wheat, set about with lilies,—whose nose was the tower of Lebanon, which looketh towards Damascus,—and who promised to her well-beloved that he should lie all night betwixt her breasts,—was not Solomon's mistress but the Church, the spiritual spouse of Christ.

And;—

If the writers of the Old Testament were really inspired, they must be supposed to have spoken figuratively on all these occasions, when they have ascribed all human passions to the Supreme Being. It may be objected to me, that as the Hebrew Scriptures contain little else than the histories of squabbles and bickerings between Jehovah and his people, we might come in this way to allegorise the greater part, if not the whole, of the Old Testament. I confess, for my own part, I would rather believe the whole to be an allegory, than think for a moment, that infinite wisdom could ever waver in its judgments, could ever be disturbed by anger, or could at any time repent of what it had ordained.

The "Œdipus Judaicus" consists of four distinct treatises:—"On the Forty-ninth chapter of Genesis"; "On the Fourteenth chapter of Genesis"; "On the Tabernacle and the Temple"; and "On the Book of Joshua." There are also a few notes on the Book of Judges, and on the Pascal Lamb. Starting from the premise that much of the earlier history of the Jews must be allegorical, because to take it literally would be to degrade the Deity, the author tries to prove that Moses and Joshua were two great Reformers who wished to set up the worship of a Spiritual Being, instead of material objects. Tsabaism, or the worship of all the hosts of heaven, was, at the time when Moses began to exercise the functions of legislator, prevalent throughout the East. This idolatry consisted in supposing that the Sun, Moon, and Stars were conscious and intelligent beings, which governed the earth with all its inhabitants. To overthrow this idolatry it was necessary to proceed from within, that is to say, to retain many of the outward symbols of materialistic worship, but to attach to them new meanings, and invest them with a new kind of sanctity. This was certainly the course pursued afterwards by the Christians towards the Pagan creeds, and would be so far following analogies, the effect of which may be traced to the present day. Now to step from polytheism to simple theism is not an easy thing. It is probable that the wise men of Egypt, amongst whom Moses was brought up, had just notions about the unity of God. But this was not the case with the mass of the nation. Nor did the Egyptian hierarchy desire to enlighten them. The main difference between the legislation of Moses, and that of the Pharaoh from whom he delivered Israel, was that the former desired to explain to the humblest Jew the purest worship he could himself conceive, whilst the latter, and his priests, were anxious to keep their esoteric knowledge to themselves. Moses was not in a position to abolish symbols in his mode of serving the one true God. That is apparent in every word of the directions given for the daily sacrifice, and the formation of the tabernacle. The ark itself was borrowed from the Egyptians; and if any apparatus of ceremonial worship was really elaborated in the wilderness, it must needs have been thoroughly Egyptian in its character. Seeing the old symbols the Israelites would naturally attach to them the old ideas, or, in other words, they would return to the God of Egypt. Something of this we see in the story of the Golden Calf. Moses destroyed it, and set up a serpent. Here was, apparently, nothing more than a change of one beast for another. But something more than this was required. Sir W. Drummond finds the immediate object of Moses was to prove that the astronomy of the Tsabaists—the very foundation and proof of their religion—was false, and, by substituting a true astronomy, to prepare a way for a religion of the Author of the Heavens themselves. A knowledge of his true system would, of course, be confined to his priesthood; but it was necessary to destroy the credit of the Tsabaists by carrying out reforms of those parts of state-craft which depended upon such science as they possessed. Few of us, perhaps, realise how much the conduct of human life depends upon having a perfect Calendar. Its regulation has, in almost all ages except these last been left to the priesthood. In China, about a century ago, it

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fell into disorder. The emperor and his ministers apprehended—and not without reason—the dissolution of the empire. If their rulers could not tell the Chinese when to sow and when to reap, revolution would speedily follow. In this extremity, the Government appealed to the Jesuits. They afforded the necessary knowledge, and the dynasty was saved. Into some such disorder had fallen the Calendar of the inhabitants of Palestine when Moses and Joshua appeared on its borders. The Tsabaists worshipped the host of heaven; but they worshipped it as it stood when some Zoroaster or Adami had founded the religion. Then the Vernal Equinox had answered to the sign of Taurus; so the Bull was deified. A little more than two thousand years ago, the sign of Aries answered to the first of the signs, as that of Pisces does in our day. When, therefore, the Sun rose from the lower hemisphere, in the sign of the Ram, or Lamb, instead of that of the Bull, the reason for worshipping the Bull was gone. The legislator who could see the importance of this fact was in a position to alter not only the Calendar, but the objects of worship also. Moses made use of it to lay the foundation of a spiritual worship altogether. This is the key-note to “*Edipus Judaicus*.” How the twelve tribes of Israel took as their emblems the twelve signs of the Zodiac; how Joshua is a type of the Sun; how Palestine was divided, like Egypt, upon astronomical principles; how Moses, with an accurate knowledge of the solar year, applied that knowledge in a practical way; how Joshua abolished the lunar year; how the proclamation of the true year, that of Jubilee, sufficed to overthrow the City of the Moon, or Jericho; how the Zodiacs of Dendera may be very ancient, though the temple in which they are now found is not; and how the apparition of Melchizedek may be a prophecy of the perfection of modern science; all this, and much more, may easily be true, if you can once believe a modern writer has penetrated the design of Moses.

FOR EVER AND EVER.

For Ever and Ever. By Florence Marryat. 3 vols. post 8vo. (Bentley.)

A remarkably bright and well-written tale; although full of interest and of incident, almost verging on the sensational, yet free from everything objectionable. The tone of writing is particularly healthy, and the manner in which some of the most unpleasant topics of the day are handled is not only able but instructive. The story—which, like most stories of the present time—trenches on the limit which separates Society from those without its pale, owing to their having passed over the bounds, is still so evidently narrated, not for the purpose of paliating offences by showing up the rest of the world,—but in order to warn and to counsel; that we should not do the author justice if we did not point out this, its peculiar feature. A mind firm enough to look steadily on such subjects, and to deal with them in a proper spirit, above all gifted with the religion of common sense, as well as of charity, is rare. We have read, *usque ad nauseam*, appeals on behalf of vice, which almost advocate crime by the way in which all the ordinary affairs of life are sneered at, and which, by continually trying to draw tears from us at the sight of extraordinary but well-deserved misery and punishment, have rendered us callous to anything but sensational, self-purchased trials. Such authors have filled our ears so long with eloquently drawn out tales of suffering, superinduced on vice, that a decent character appears quite flat, and almost seems to merit punishment for its tameness. It is for this reason that sensational novels have incurred just blame. We all know that mortals are frail, but why should we be always compelled to be in the anatomy school, witnessing the clever dissection of diseased subjects, when the sight of the workings of a tolerably healthy though peccable heart might be a pleasant change? It is then the spirit in which dissections are made which distinguishes novel writers, how-

ever clever, from each other. Those who are ever slashing away at humanity, and showing us all its diseases, are actuated by no love for their kind; those who disclose the terrible secret wounds, and their true causes, and the way in which these are to be healed, are true philanthropists. If we find mature, worldly wisdom only engaged in pointing out the evils its experience has detected, without offering a remedy, we cannot estimate the value of such experience very highly; but if we are taught that it is possible to escape such dangers, and to live happily without living in a tornado of excitement, we rise up with a feeling of thankfulness that life after all may be endurable, although too quiet for a modern three volume novel. In “*For Ever and Ever*” we are not introduced to the spectacle of a seduced girl, trampled on and persecuted by the respectable world, merely that our pity may be raised at the tortures she undergoes. We are not taught that parsons always cut off all such offenders from their flocks, instead of bidding them go and sin no more; but we are shown the misery in order to deter us from thinking lightly of the consequences which such conduct draws on the circle of relatives and friends, and we are then made hopeful by seeing that recovery is not impossible for the offenders, and that neither the streets or suicide are the only methods of solving the difficulties of the unfortunate class. The great difference between real life and that fictitious existence presented to us by novelists is simply this,—the real thing is much tougher, and stands a great deal more honest wear than is supposed. Tears of blood and rending of heart-strings, &c., &c., are very shocking, but after all these are not so thoroughly deadly when they occur. There are few living beings who have not gone through some phase of the sufferings to which flesh is heir; and yet you will find them pretty cheerful, considering. It is this happy elasticity of our common nature which is so wonderful, and which sensational novelists hardly ever touch upon; unlike the Psalmist, we are to go through the vale of misery, with them, but not a drop of the well of comfort are we to taste from beginning to end. Now, we don't like nothing but misery; moreover, it tends to make us very hard-hearted. We have already found ourselves falling into a habit of distributing mendicity-tickets instead of coins of this realm in warding off the attacks made upon our feelings by the wretched; and we solemnly aver that reading sensational novels has brought us, more than aught else to this melancholy pass, this dead level of indifference. We have cried so much, and we have had our sensibility so overwrought, that we find it will not respond to ordinary afflictions. “*For Ever and Ever*” brings before us a man who falls under the snares of a siren, an actress, who has no heart, but great personal beauty. Wardlaw is studying to become a master of the brush, but is tempted to neglect everything for the pleasure of the company of Rowena Bellew, to whom he is engaged to be married. The fascinating Rowena jilts Wardlaw for the sake of a young officer, whom she considers a better match. In marrying Leofric Temple, Rowena discovers that she has met her match—he being more selfish than herself, and dissolute. Rowena ultimately elopes with a Lord Charles. The character of Rowena is very cleverly delineated. Wardlaw discovers that the daughter of an old friend, for whom he originally felt an attachment, is really in love with him, but has married her cousin, because she had engaged herself to him while Wardlaw was engaged to Rowena. Wardlaw is cured of his affection for Rowena Bellew, and goes to Rangoon, where, on his death-bed, he learns that his true love, Henrietta Stuart, is a widow, and free. He dies, having realised the wish of his mother's prayer that he should pass through life unharmed, and attain that life which is “even length of days for ever and ever.” The accessories of the novel are in good keeping, and the whole story is well-conceived and skilfully worked out; and written, moreover, in a good firm style, not without much simple pathos, but entirely without maudlin sentimentality.

THE EARLY ENGLISH TEXT SOCIETY.

The Book of Quintessence; or, the Fifth Being, that is to say, Man's Heaven. Edited from the Sloane MS., 73, ab. 1460-70 A.D., by F. J. Furnivall, M.A.

Political, Religious, and Love Poems, from the Lambeth MS., No. 306, and other MSS. Edited by F. J. Furnivall, M.A.

WE noticed last week, that most curious tract of *Hali Meidenhad*, edited by Mr. Cockayne, for the Early English Text Society, and this week choose for review the next book in order of curiosity, from those seven with which the Society has this summer supplied its members, as a first instalment of their year's volumes. *The Book of Quintessence* is one of those productions that some men sneer at as all superstition and nonsense, but which others more wisely look at with interest and respect, as one of the early attempts that have led in course of time to Modern Chemistry, and the triumphs it has won over the world of matter, for the enrichment and comfort of man. As in the life of each one of us, childhood starts with its giants, and fairies, and green-cheese moon, so in the spring time of every science mystical notions and fanciful nonsense cling to it. Are we then to pooh-pooh giants, and sneer at alchemists? Far be it from us! Let us know all about one and the other, hear of Kablosporo's Club, and the way that Fifth Being was made. The latter, the text tells us, was revealed by an angel of God to Hermes, the Prophet and King of Egypt, after the flood of Noah, Father of Philosophers, to the end that the wisdom of this book should not perish, but be kept unto the end of the world by holy men, from all wicked people and tyrants, for fear of the great perils that might fall thereof. Now this revelation to Hermes was of the first and most sovereign purity that God had ordained for man's need, how that old evangelic men, and feeble in kind, might be restored, and have again their first strength of youth, and be made whole perfectly, except from stroke of thunder-blast, and violent bruises, oppressing by too much beating, perilous falling from high places, and the term that is set of God, which no man may escape. And the remedy, divinely revealed, that is to work this wonder, and many others,—as curing consumptive people given up by doctors, leprosy, palsy, possession by devils, gout, fever, &c.—is, so far as we can make out, brandy or spirits of wine. Elaborate and quaint directions are given for distilling the liquid from wine, and Mr. Gill, the chemist, who adds some notes to the treatise, observes that the direction to distill the wine seven times, is a good practical suggestion for the obtaining of strong alcohol which will burn well. The distilling apparatus seems to have been arranged to ensure a very slow distillation, so as to obtain a product as colourless and scentless as possible. The alcohol (that is to say, man's heaven) being produced, you were to “putte therein a little quantite of essencia of gold and of peerl; and the olde feble man schal use this devyn drynk at morn and at even, each tyme a walnote-schelle fulle; and withinne a few days he schal so hool that he schal fele him silt of the statt and the strenkthe of XL. yeer, and he schal have greet ioie that he is come to the statt of yongkthe!” Besides death there is only one disease that quintessence cannot cure, and that is Pestilence sent by God to take vengeance for sins: ordinary Pestilence it will cure straight off, but of the other, says the writer, “Therefore a gret fool were he that wolde presume to cure these plagis of pestilence that ben uncurable, that ben sent of God to pynysche synne.”

Of all the pieces in the volume of *Political, Religious, and Love Poems*, the most touching is the “*Virgin's Lament over her dead son, Christ*,” as she comes from Calvary-ward, weeping and wailing that she was born—

“If any man love me, lend me a plase
Where y may wepe my fille, & reste!
Filius Regis mortuus est!”

The changes of feeling described, the mother's loss, her sense of loneliness when her child is

gone, her passionate reproaches to the instruments of his death,—the cross, the thorns, the spear,—and then the desire to weep her fill, and rest are all true to nature, and finely given. We extract just a piece of one verse:—

"He dieb, he dieb, bat is my blis!
He swelte! y swowned, y cried a-las!
No wondir is of my greet heuynes!
Mi fadir, my brobir my spouse he was,
My modir, my socour, & al bat ys!
Now fadirlees & modirlees y mai forþ passe,
Broþerlees, spouselees, ful wrecchid y-wis,
As a þing forsaken bat noþing has!"

This mother's love for her child is a subject that early English writers, like the early Italian painters, never tire of, and whether their verse is good or bad, one cannot but recognize the beauty of the feeling. Here, for instance, is an apology from the Virgin to her baby for the poor cradle and swaddling clothes that are all she can give him. How simple and natural it is:—

"Iesu, swete sone dere!
On porful bed list þou here,
And þat me greueþ sore;
For þi cradel is ase a bere,
Oxe and asse beþ þi fere [companions];
Weope ich mai þar fore.
Iesu, swete, beo noth wroþ
þou ich nabbe clout ne cloþ
þe on for to folde,
þe on to folde ne to wrappe!
For ich nabbe clout ne lappe;
Bote ley þou þi fet to my pappe,
And wite þe from þe colde."

Among the first political pieces in the volume are a very curious Satirical Proclamation, supposed to have been written by the party of Cardinal Beaufort against the Duke of Anjou, father of Henry VI.'s future queen; and a fuller version of the well-known *Jak Napes*, from a copy made by Stowe, the short text of which Mr. Wright printed for the Master of the Rolls. The Love Poems are poor, though we are glad to have among them *La Belle Dame sanz Merci*, and hear how she snubbed her wan and pale fond lover, till he rent his hair and died within "a day or twayne." "Saint Gregory's Trental," and "The Adulterous Falmouth Squire," illustrate well certain points of Romish teaching, and the former shows how entirely the interests of morality were subjected to the desire to glorify the power of the Romish mass and priests. Of the *Stacyons of Rome*, and Mr. Rossetti's valuable notes on it, we prefer to speak when the promised earlier text of it, from the Vernon MS., identified since the appearance of the present volume, appears. Mr. Halliwell, it appears, catalogued this and another long poem, of which the sections were separated by spaces, as short religious poems, and so threw the editor off the scent. The Proverbys of Housolde Kepyng, at pp. 29-33, are very curious; and the A B C poem on the Passion of Christ, at pp. 244-50, is the earliest specimen of its kind that we have seen. Though we cannot tell Mr. Furnivall that this volume has interested us like his capital *Wright's Chaste Wife*, of last year, or his simple *Arthur* of the year before, yet its varied contents, ranging from the comicalities of its scraps, that we have not space to notice, to the deep pathos of its religious poems, render it a welcome addition to our early stores. Had not a sad, sad line in the preface explained why some comments could not be made, we should have liked to know whether in 1380, the date of the MS., there was any special cause for the following complaint on—

"THE ILLS OF OUR TIME.

"Charite, chaste, pite, arn waxin al colde.
Couetise, Lust, & maistrise, arn be-comin al bolde.
Consel, god acord, & wedloc ben nou noþing of tolde.

Stronge, trewe, & corteis, kepte þe land;
Bot now feynthe, false, folis it han vndir hand;
þeues, liers & fowlwimmen boldeli forth stand,
Vnder dercnesse darket lit of stedefastnesse.
vnder sleuþe darkit þe loue of holinesse.
For faute of rit domusman þe lauwe slepit of rit-wisenesse.

wif, wille, and riches, han þe maistrise ta[ke];
vertu, godede, & almsdede, arn al for-sake;
Oker [usury], lieying, & wantonesse, mickel serwe make."

THE EDUCATOR'S GUIDE.

A Handy Book for Principals of Schools, Parents, Guardians, Governesses, and Tutors. By R. H. Mair. (Dean and Son)

THE relation of Parents and Teachers to each other is so little understood by either party that Mr. Mair's "Guide" cannot fail to be deemed acceptable. The author's is such a well-known name in the Scholastic world, that preceptors will be fain to confess his right to speak with authority on most of the subjects noticed by him. The varied particulars which come under his observation have been elicited from the most reliable sources, and he has supplied much useful and original information.

On the points of the liability of parents to school proprietors the commencement of the work is very explicit; while good and substantial reasons are given why schoolmasters are justified in requiring the *quarter's notice*, they usually demand and expect, previously to the removal of pupils from their establishments. "It is only by relying upon a certain number of pupils to return after a vacation that they are enabled to arrange their finances for the next term." During each recess they incur liabilities by engaging assistants, and purchasing school-books, apparatus, and stationery, in sufficiently large quantities to meet the probable requirements of the next "School-half." Several trials are quoted showing that, for the most part, the Law supports the Schoolmaster's claim.

Under the head of "Scholastic Engagements," the hiring of assistant-masters and governesses is fully discussed, and some very judicious hints are given both to principals and assistants. We do not, however, agree entirely with the author when he suggests to assistants to submit to have their capabilities tested by principals previously to concluding an engagement. Men certainly should not profess to teach subjects of which they are entirely ignorant, nor should they engage to give advanced instruction in subjects with which they are only partially familiar; but there are many persevering and conscientious young men who read up the subjects they have to teach, and are the better qualified to assist their pupils in their difficulties, from the fact of having so recently struggled with and overcome them themselves. Some, indeed, may look with suspicion on such workmen as these; but the fact is, they are not unfrequently far better adapted for the class of scholars that falls to them than are tutors of more profound attainments, who have not the most remote conception of those ever-recurring "little difficulties," over which the beginner stumbles in his first attempts to walk in learning's rugged road. Assistants, taken as a body, are every whit as honorable as principals. We can imagine the look of surprise on the part of the employer, if he were requested by the *employé* to produce his bank-book, as evidence of his being able to pay the salary stipulated for; and yet it cannot be otherwise than fair that the one party in the transaction should make himself as certain as the other.

By no means the least useful of the chapters is that entitled "Transfer of School Property." Those persons contemplating entering into negotiations of this kind, may save themselves expense and disappointment by carefully going through these pages. Mr. Mair has placed his long experience, in this department of his business, completely at the disposal of the reader.

"Scholastic Advertising" occupies a prominent position in this work. The advantages to be derived therefrom are duly set forth. Though the educators of youth so generally acknowledge the obvious necessity of advertising, yet many of them do not regard the necessity for correctness in their advertisements, as twenty-four specimens go to show; one of these we subjoin:—"A lady, the mother of a large family and experience, wishes for children to educate with her own." That such absurd blunders as this and the remaining twenty-three are more the result of carelessness than of ignorance, we admit; but a careless teacher is but few removes superior to an ignorant one.

On "The Position of the Teacher," we find a great deal that is well known, but which, nevertheless, is deserving of a place in this book. Let the author speak for himself:—"Is it not strange? The man who educates the parson, the lawyer, and the medical man, immediately takes a position in the social scale beneath his pupils, so soon as they have passed their several examinations. It may be that his family is of higher rank than that of his pupils; but yet society gives precedence to the latter, because, by a fiction of society, they belong to recognised professions. The schoolmaster may be a man of position, but if so he is a made man. He did not enter society *ex-officio* as did his neighbours, the Rev. So-and-So, Lawyer Snub, or Doctor Grub." This is quite true; and it *does* seem strange, that while it is thought necessary for the public good that our legal adviser and our medical practitioner should be duly qualified men, the instructors of the future masters, fathers, and husbands of England should be allowed to number in their ranks "all sorts and conditions of men." But the public is quite content, so long as there is plenty of pudding and not too much cane. It *does* seem strange that, while there is legislation for the clergyman, the inn keeper, the cabman, and the chimney-sweep, the schoolmaster may impose on the credulity and ignorance of parents; and waste with impunity the most important periods of human life. Well may Mr. Mair call the attention of preceptors and parents to "the position of the teacher." We have the "British Association for the Advancement of Science;" would that we had the British Association for the Advancement of Schoolmasters! Competent men dislike to enter the scholastic profession because, as a rule, the pay is small, and the position,—nothing at all; and the public dislike to pay much for education because there is nothing to vouch for the efficiency of the instructor. Let the teacher have his diploma, and the public will pay him and respect him. "The Educator's Guide" is wrong, however, when it says, "A Registration Act, similar to that for the medical profession, has been much advocated; but it is very doubtful whether it would in anywise raise the social standing of the teacher irrespective of the man." And again—"The children of the poor must be taught, and their teachers only require to possess a very limited amount of knowledge; yet these educators would be schoolmasters, and consider themselves professionally on a par with those who had passed a higher examination." This is looking at the matter sideways. A clergyman is received by virtue of his professional status, whether he be a curate with an income of £80, or a rector on his £1,800; but there is as great a difference between a national schoolmaster and a middle-class school proprietor as there is between a scripture reader and a clergyman. As the matter now stands *anybody* may become a teacher without having been properly trained, or without being duly qualified; obviate this, and the evil is remedied.

Neither the least amusing nor the least suggestive chapter of the work before us, is that on "How Tradesmen have become Schoolmasters." Five instances are given of this:—The Tailor, the Butcher, the Sailor, the Hawker, the Stone-mason. From these it is evident that the smallest ingredient in the composition of a preceptor, under the present state of things, is education. If a man possess some little money, and a good share of impudence, he is much more likely to become a prosperous schoolmaster than the man who is possessed of talent and education. "School Discipline" shows painfully the awkward position the schoolmaster is placed in with respect to his pupils. Should he suffer faults and shortcomings to remain unpunished, he is doing an injury to his pupil and violence to his own sense of duty; should he use correction, he renders himself amenable to the law, and runs the risk of the loss of scholars. We can imagine no position more unpleasant than this. Many trials are quoted, most of them showing that the law does not recognise the right of the teacher to

inflict corporal punishment. The author's ideas on the subject are as follows:—"The author's theoretical opinion upon the subject of corporal punishment will not be of much value; but he considers that to keep boys manageable, there must be some ruling power, able to coerce as well as persuade. If there be prizes for good school-boys, there should be canes for the refractory. If there be rewards, there must be punishments. The *suaviter in modo* ought to be upheld by the *fortiter in re*."

In "A few words about Governesses," we are distinctly informed, on good authority, that the popular idea of the hardships, &c., of this class of the community is incorrect. We read—"An accomplished gentlewoman experienced in teaching may obtain £100 per annum, with board and residence; but easily procures £80, and will refuse £75. Second-class experienced governesses easily find engagements at £50, and board and residence; while those of a lower grade, have, if experienced, no difficulty in getting from £30 to £40 a-year, which is the salary usually paid to medical assistants who have no diplomas. If salaries of less than £30 be given, it is only to ladies who are too young to have had experience, or whose attainments are very meagre. If a lad leave school and seek employment, he has, if he be intended for a professional career, to spend years in study, and expend much money ere he can earn a shilling; and if for mercantile pursuits, before he is deemed worthy to receive a salary he must give his gratuitous services for, perhaps, two or three years; whereas, if he pursue a trade, he must pay a premium, and give his services for seven years. How, then, can it be said that governesses are worse paid than other persons. Upon first procuring engagements, they always receive a salary; and if possessing a sound education, their services are certain to become more valuable every year as they gain experience."

Passing over a chapter on "Female Education," we come to "Scholastic Agency," from which we gather that the chief part of the Scholastic Agent's calling consists in providing Principals of Schools with assistants. The casual reader might be led to suppose that these agents are only half-paid, from certain observations which are made; but reading on a little farther, we find that the assistant pays the agent, while the principal pays nothing; although there certainly is as much benefit to the master of a school when he obtains a competent assistant as there is to an assistant when he obtains a comfortable situation. Such a state of things, the author acknowledges, should not exist. He proposes a remedy:—"If these" (agents), "one and all would strike, and determine to charge principals for services rendered, they would materially raise their social standing, add to their profits, secure each a *recognised connection*, and be generally respected." Again,—"The general demand for tutors in schools at the present time exceeds the supply. If teachers, then, will but demand that employers share with them their obligation to the agents, their requisition *must*, as a rule, be complied with." From these extracts it will be seen that it is a *sine qua non* on the agents' part that they "one and all" make the alteration, by requiring school principals to pay half their commission. This is, to say the least, fallacious; for, if it be true that the demand for teachers exceed the supply, then it would pay any one agent, independently of the rest, to adopt the plan. Crowds of assistants would employ a *respectable* agent, who charged them two-and-a-half instead of five per cent., and principals would have to look for assistants where they could be found, and would be glad to pay a trifle—for half the commission would be but a trifle—if they could not procure men without. The present system falls very hard on teachers. A young man makes an engagement at a salary of £40 per annum; the school is at a distance; £2 go for his agent's commission, £1 more goes for his travelling expenses; upon entering on his duties, he finds the appointment anything but what he could wish, resolves to leave

at the quarter's end, and pays another pound for his return railway fare. Thus he earns at the rate of £24 per annum, instead of £40, and has the consolation of knowing, that when he obtains another situation, forty shillings more must be paid. School assistants *must* have appointments, and the agent cares not who pays so long as he gets his money.

Besides those we have noticed, there are several other sections in this work that will be found to contain much information to those engaged in or interested in scholastic business. We wish for the "Educator's Guide" an extensive circulation, for the sake both of preceptors and guardians of youth.

SIR SAMUEL BURDEN ELLIS.

Memoirs and Services of the late Lieut.-General Sir S. B. Ellis, K.C.B., Royal Marines: From his own Memoranda. Edited by Lady Ellis. 1 Vol. Demy 8vo, pp. viii.—343. 21s. (Saunders, Otley, & Co.)

THE pious reflections with which these notes, or memoranda, for we have pages filled up with nothing more, are garnished, may do credit to the orthodoxy, but will not increase the literary reputation of the late Sir Samuel B. Ellis. Indeed, Lady Ellis has furnished us with a volume on which it would be easy, and perhaps even commendable, to be very severe had it appeared in the lifetime of the writer himself. We might have said that such a mere collection of uninteresting dates was scarce worth publication, and certainly not worth buying; that the monosyllable "I" is far too conspicuous to be welcome on every page; that Sir Samuel's observations on the great sights of India and China are scarce worthy of a midshipman; and that we do not want the authority of a Lieutenant-General and a K.C.B. for believing that there are many Chinese who "abound with the milk of human kindness, and are open as the day to 'melting charity'; and, doubtless, many also there are, as in 'Christian Europe,' whose flinty hearts feel not the woes of others." Perhaps the numerous services he rendered to his country may have prevented Sir Samuel from cultivating literature; and his widow may have thought, not unjustly, that it was better the old soldier's journal should take its place for what it is worth now than moulder away for a century, till every human being who could take an interest in it had long since followed him, docketed and ticketed "family papers."

After being present at Sir Robert Calder's engagement off Ferrol, the young lieutenant of Marines was more fortunate on the 21st of October, 1805. It is thus he describes his experience of Nelson's sailors:—

It was at this time that Nelson's famous signal, "England expects every man to do his duty," was hoisted at the mast-head of the Admiral's ship. These words were requested to be delivered to the men, and I was desired to inform those on the main-deck of the Admiral's signal. Upon acquainting one of the quartermasters of the order, he assembled the men with "Avast there, lads, come and hear the Admiral's words." When the men were mustered, I delivered, with becoming dignity, the sentence,—rather anticipating that the effect on the men would be to awe them by its grandeur. Jack, however, did not appreciate it, for there were murmurs from some, whilst others in an audible whisper muttered, "Do our duty! Of course we'll do our duty. I've always done mine, haven't you? Let us come alongside of 'em, and we'll soon show whether we will do our duty." Still the men cheered vociferously,—more, I believe, from love and admiration of their Admiral and leaders, than from a full appreciation of this well-known signal.

In 1815, Sir Henry assisted at the capture of the "President" during the American War:—

The sight on the deck of the American frigate was strange indeed. Guns were there named by familiar titles; there was the Nelson and Nile, the Trafalgar, and others, just as if Englishmen were her crew; her lower deck and cockpit were covered with dead and wounded. Most of the killed I succeeded in getting thrown overboard, excepting the three lieutenants, who were laid in their cabins. On the "President" surrendering to

the "Pomona," fifty Englishmen (a disgrace to their country) threw themselves overboard,—seeking death to avoid a more ignominious one, which the violated laws and feeling of England would justly have inflicted.

It is a melancholy consolation to learn that however immoral our Government may have been in forcing opium on the Chinese, the *lex talionis* has been occasionally carried out by equally immoral Chinese bumboat men upon ourselves.

Sam-shu is distilled from rice, and also from sweet potatoes, and is used by the Chinese as an ingredient in cooking. They also drink it in small portions at their meals, warmed. In appearance and flavour it resembles an inferior sherry wine. Many men of all arms, naval as well as military, died miserable deaths, from too unguarded an indulgence in its use, and to such an extent did the evil spread, that the Commander-in-Chief, Sir Hugh Gough, considered it necessary, with the view of checking the crime of drunkenness, to notice it in brigade orders, and vigilant measures were taken to prevent the Chinese from selling the spirit to the troops.

An unfortunate bumboat man, who followed too closely the example rather than the precept of the Fan-Kwei, or "red-devils," was menaced at once with castigation and the loss of his tail. Sir Samuel, however, who seems to have been so amiable that we cannot help thinking he must often have injured his prospects in life by his facility, merely went through the motions of those ceremonies, and the Chinaman was restored, literally without a hair of his head being injured, to his friends. On another occasion Sir Samuel used all his authority to preserve an exposed infant, a very common object indeed in China. Mr. Gutzlaff, in whose management the city police of Ningpo was placed, did not regard the incident as worth interference; but Sir Henry made use of the unanswerable argument that, if no provision were speedily made for it, "I should order the foundling to be left at his quarters."

The charm of the book resides in these little proofs of the writer's disposition; and we are sorry to find such an amiable man becoming in his old age, like so many gallant officers, the dupe of a promoter. He, in the language of Lady Ellis, "allowed his name to appear as a Director to a scheme, just then started, and called the "Direct Exeter and Plymouth Railway." In 1852 the railway became a failure, and entailed a loss upon Sir S. B. Ellis, not only of the whole of his hard-earned batta and savings, but also of a large portion of his income, which had to be put on one side for many years, to meet the calls made upon him." By some singular regulation of the service, as Sir Samuel did not marry till he was past sixty, his widow is entitled to no pension or allowance. It is surely the interest of the distributors of Government bounty to encourage late rather than early marriages. Perhaps the injustice, now apparent in the case of so gallant an officer, may lead to some alteration in this Anti-Malthusian law.

Thrown Upon the World. 2 Vols. By Ennis Keir. (Newby). In the present days of commercial panic and failure of house after house that has enjoyed in business circles a wide, and, deservedly so, a great reputation, it has been no uncommon occurrence for a merchant in the possession of wealth, and of all the comforts and luxuries that wealth can furnish, to be suddenly "thrown upon the world" with barely the necessaries of life to subsist upon. The unlooked-for misfortune breaks the heart of the strong man, and he leaves behind him a wife and family to struggle on through a cold-hearted world. The morbid picture of life is so often given that even a faint sketch of the reaction from adverse circumstances is, in some slight degree, a step onwards. The object the author had before him was to set forth the results of energy and perseverance when applied in the right direction, and, though many a book may be better written, in this case the purpose balances what little defects there are in the work.

A Bad Beginning. By K. T. Macquoid. 1s. (Smith, Elder & Co.) The only good point in this book is that it shows up the evils and misery

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arising out of the marriage à la mode of the French. A young girl leaves her home at a tender age to become the wife of a man old enough to be her father; he marries her, not for love, but simply because she is pretty and will grace his table and manage his house for him. By and by the young wife finds out that she does not possess the love of the husband to whom she has given her hand and her heart. Much mischief is made by a sister-in-law, and, fancying the whole fault rests with his wife, the husband neglects her more and more, and it is only after a severe illness, and when she is on the point of death, he discovers that he has indeed a wife in every sense of the word.

Grey's Court. Edited by Lady Chatterton. 1s. (Smith, Elder & Co.) There is little to learn from the pages of "Grey's Court," and we are at a loss to understand the drift of the story, the main point in which is the sudden disappearance of the heir to a large estate in the shires, who is engaged to a cousin a few years younger than himself. From the sequel it appears he has been carried off by some smugglers, and, landing in France, is arrested and confined in a prison, from whence, after some years, he contrives to escape, and returns to England only to find his betrothed the wife of another.

Hena; or, Life in Tahiti. 2 Vols. post 8vo, pp. 560. By Mrs. Alfred Hort. (Saunders, Otley & Co.) First appearances have sometimes the same effect with books as they have with individuals, and, though the exterior may seem to promise well, it frequently happens we meet with a great disappointment instead. The fate of many a book is decided by the fact of its commencement being well or indifferently written; and, from the early chapters of the novel before us, we must congratulate ourselves on possessing a well-written and entertaining book, but the further we read the less interesting the story becomes. Most authors have a purpose before them when they wield the pen, but what that purpose was which Will o' the Wisped Mrs. Hort on to the end of two volumes remains a question. After a description of Tahiti, which is one of the most beautiful of all the isles of the Pacific, abounding with every kind of tropical fruit and flower, and, at the same time, being free from all the evils that render the tropics so unhealthy for man, we are introduced to the two chief characters in the story—the one a young Englishman travelling for pleasure, and, though apparently cold and reserved, possessing many noble qualities; the other, a dashing pleasure-seeking Frenchman, who does not let his duties as an employé of the Government interfere with his amusements, and whose favorite motto is evidently *vive la gâté*. During one of their rambles over the island they met with two native girls, with one of whom, "Hena," the young Frenchman falls deeply in love, and, though betrothed to a cousin whom he has left behind in France, he determines to make a fresh conquest. His companion endeavours to dissuade him, but without effect. How he is frightened out of his purpose by discovering she is a daughter of his own father, who had previously lived in the island, and how she eventually marries his friend the young Englishman, we must refer our readers to the book itself, but we cannot promise them either amusement or benefit from a perusal, as it is written in a very rapid manner and lacks power. One little anecdote of Tahitian indolence is worth quoting—"On the arrival of a certain man-of-war in the harbour, a native servant begged for a line of recommendation to enable his wife to procure the ship's washing. This request was readily accorded, when the following day he failed to make his usual appearance at the house, although aware that a large party was expected to breakfast, where it was his duty to wait. Messengers were dispatched immediately for him, with no effect; his wife was earning a sufficiency by washing, in which he was aiding her, the loss of a good place being apparently of no consequence to him whatever."

We have received the *Eclectic and Congregational Review*, the *Sunday Magazine*, the *Family Herald*, the *Mother's Treasury*, the *Missing Link Magazine*, the *Children's Hour*, *Good Words*, the *Cottager and Artizan*, the *Christian Treasury*, the *Leisure Hour*, the *Sunday at Home*, the *Sunday Teacher's Treasury*, the *St. James's Magazine*, the *Sixpenny Magazine*, the *Day of Rest*, the *Colonial Church Chronicle*, the *Church Builder*, the *Church of the People*, *Routledge's Magazine for Boys*, the *Boy's Own Magazine*, the *Boy's Monthly Magazine*, the *Children's Friend*, the *Infant's Magazine*, the

Pulpit Analyst, the *Monthly Magazine*, the *Englishwoman's Domestic Magazine*, the *Young Englishwoman*, the *Band of Hope Review*, the *British Workman*, the *Ladies' Treasury*, *London Society*, the *Sixpenny Magazine*, *Evangelical Christendom*, the *Union Magazine for Sunday-school Teachers*, the *Bible-class Magazine*, the *Biblical Treasury*, the *Sunday-school Teacher's Magazine*, the *Youth's Magazine*, the *Child's Own Magazine*, the *British Navy and Army Review*, the *Mother's Friend*, *Merry and Wise*, the *Victoria Magazine*, *Aunt Judy's Magazine*, the *Net*, the *North Lonsdale Magazine and Lake District Miscellany*, the *Suburban Magazine*, and the first number of *Christian Society*.

CORRESPONDENCE.

CELTS IN IRELAND.

To the Editor of THE READER.

Sir,—Allow me to thank Dr. Beddoe for his offer, and also to state that it is from the mass, not a section, I judge.

Your correspondent "O.'s" premises seem to be shaky, and in spite of "such a statement quite surprising any Irishman who pretends to a knowledge of the history of his country" I still think that any unprejudiced person who examines into the history will find, "that Connaught men of the present day are more foreign than Celtic."

"The province of Connaught has been less affected by Anglo-Norman filibusters, and subsequent English subjugation, &c., &c." Immediately after the English had gained a footing in Ireland in the thirteenth century, the Anglo-Norman Burkes drove the Irish out of east Connaught, and their descendants or other foreigners have occupied it ever since. In Elizabeth and James's time, English settlers were forced on the Irish of West Connaught, and by Cromwell they were driven into Connaught by thousands.

"To hell or Connaught." The popular histories of Ireland were written by the English faction, and Irish novels are in the same cast, therefore the people of the east of Ireland up to the present day, have as ridiculous ideas of Connaught men as the English have of the Irish, and if you ask them what is the meaning of "to hell or Connaught," 99 out of 100 would tell you (what I imagine "O." would also say), that Connaught is such an awful place, that you might as well go live in hell as in that province. However, the real meaning is nearly the opposite; for when the Roman Catholics of Ireland were being converted by the enlightened English, they were given the choice of staying where they were and changing their religion, or being hunted as beggars across the Shannon, therefore they said "we must go to hell," i. e., change their religion "or Connaught." From this it is seen that the expression has no reference to race.

"Tens of thousands of native Irish driven across the Shannon by the Cromwellians." The Cromwellites did not confine their attention to the native Irish, as, for instance, the "Tribes" of Galway felt their heavy hand more than any other people in Ireland, and yet these "tribes" had penal laws against any member of their sept who dared intermarry with the Irish. It was against the "Papists" they waged war, and every one that would not conform was driven West (see Lists among the State Papers for the number of foreign names), they even went so far that they slaughtered an English regiment on suspicion that they were "Papists," because they had served under the Stuarts.

"The tenacity of the Irish language in the provinces is also surely evidence against the Anglo theory." In some undoubtedly English settlements the people all speak Irish, as, for instance, the country about Muckinish, Var-Connaught, principally inhabited by Walshes, the descendants of some of the English brought over not 200 years ago by the Martins, and yet now scarcely one of them knows a word of English; while in Littermullen, one of the islands on the shore of Galway Bay, a most out-of-the-way place, where there are only two foreign families, nearly every man, woman, and child can speak English. In the neighbourhood of Galway town, where they are nearly all of foreign descent, they also talk Irish. The real reason why the inhabitants of Connaught held to the Irish language is not because they are of Irish descent, but when they were persecuted for their religion the Irish language was also proscribed, therefore the Roman Catholic religion and the Irish language went hand-in-hand together, and the man that stuck to one stuck to the other also. To the present day, a Roman Catholic priest in Connaught has no influence if he is not a speaker of the Irish language.

The stature of the Connaughtmen is not a question of race, for many of the descendants of the older races are fine specimens, while the offspring of the recent colonists are small and wretched. Connaught seems to be fated as the home of the unfortunate. Before the Christian era, the Belgæ or Firbolgs drove their predecessors into it; in the third century, they in their turn were driven in there by the Scotæ or Milesian tribes, and in the 13th century the Milesians were pounced into the west of Connaught by the Anglo-Normans. After that, in the time of Elizabeth and James, the English spoiled the Connaughtmen, and Cromwell, to improve their condition, first beggared the Roman Catholics, and then drove them into Connaught. At the present day many of the new proprietors—"Tell it not in Gath," the worst are English,—have raised the rent to such a pitch that the people can barely exist; or they have "cleared" the land and driven the people to herd in the towns and live on nothing or beg. This will account for Connaughtmen being decrepid and wretched, for people who for ages from year's end to year's end have to exist on half commons, must degenerate, even if they were descended from a race of giants.

"O." does not appear to have seen Connaughtmen at home, and I suggest that he should go there and see the men who can stay at home and not judge them by the poor, half-starved wretches who are driven out of it, and have to wander about trying to live. He would also learn that the Connaughtmen have fight in them, and that, unfortunately, they are more fond of spending than saving money. I always believed that the Firbolgs were a tall dark race, and should therefore be much obliged if "O." would state his authority for saying that "lowness of stature was a characteristic of the Firbolgs."

G. H. K.

PUBLICATIONS OF THE WEEK.

ALFORD (Henry, D.D.). How to study the New Testament. The Gospels and the Acts of the Apostles. Fcap. 8vo, pp. iii.—360. Strahan. 3s. 6d.

APOSTLES and Martyrs. Brief Meditations in Prose and Verse on the Acts of the Apostles. Selected from the works of Chrysostom, Augustine, Calvin, Bishop Newton, and other writers. With Twelve Photographs after Raffaele, Guido, Guercino, Rembrandt, Rubens, and other Masters. Sq. cr. 8vo, pp. v.—88. Seeleys. 12s. 6d.

AUNT Louisa's London Gift-book. Comprising Nursery Songs, Edith and Milley's Housekeeping. Life of a Doll. John Gilpin. With 24 pages of illustrations, printed in colours. 4to. Warne. 5s.

Sunday Picture Book. Comprising Joseph and his Brethren. The Story of King David. The Wonders of Providence. The Proverbs of Solomon. With 24 Pages of illustrations, printed in Colours. 4to. Warne. 5s.

AUNT Prue's Railway Journey. By the Author of "Doctor Harold," &c., &c. (Companion Library.) Fcap. 8vo, sd., pp. 252. Warne. 1s.

BACON (J.). Theory of Colouring; being an Analysis of the Principles of Contrast and Harmony in the Arrangement of Colours, with their Application to the Study of Nature, and Hints on the Composition of Pictures, &c. With Coloured Illustrations. Post 8vo, pp. viii.—51. Rowney. 2s. 6d.

BICKERSTETH. The Old Picture Bible; or, Stories from the Life of Christ. By the Author of "Doing and Suffering." With Coloured Engravings. First and Second Series. Sq. cr. 8vo. J. F. Shaw. each 3s. 6d.

BROWN (J. Baker). On Surgical Diseases of Women. With numerous illustrations. 3rd Edition, revised and enlarged. 8vo. Hardwicke. 15s.

BRYAN (Ruth). "Handfuls of Purpose"; or Gleanings from the Inner Life. 2nd Edition. Post 8vo, pp. xx.—467. Collingridge. 4s. 6d.

CAMERON (Mrs.). Emma and her Nurse; or, the History of Lady Harewood and the Mother's Grave. Copyright Edition. Illustrated. Post 8vo, pp. iv.—107. Houlston. 1s. 6d.

CARPENTER (F. B.). Six Months at the White House with Abraham Lincoln. The Story of a Picture. Post 8vo, pp. 359. Low. 7s. 6d.

CHILDREN'S HOUR Annual (The). Fcap. 8vo. Johnstone and Hunter. 5s.

CHRONICLES of Carlingford. Miss Majoribanks. Originally published in *Blackwood's Magazine*. A New Edition. Post 8vo, pp. 452. Blackwoods. 6s.

CHRIGHTON (A. W., B.A., F.L.S., F.Z.S.). Naturalist's Ramble to the Orcaades. Fcap. 8vo, pp. 132. Van Voorst. 4s.

CRISP (Edwards). On Malignant Cholera; its Origin, Pathology, &c. 8vo, sd. Hardwick. 5s.

DICKENS' (Charles) Works. Cheap edition. Bleak House. In 2 vols. Vol. 1. Post 8vo, bds., pp. 251. Chapman and Hall. 2s.

DONALD Cameron; or, Trust Winneth Troth. A Tale. By Leonora. Fcap. 8vo, pp. 142. Darton and Co. 2s.

DUMAS (Alexander). Novels. New Edition. Twenty Years After. An Historical Romance. Fcap. 8vo, sd., pp. 479. Routledge. 1s.

ELLIS. Memoirs and Services of the late Lieut.-Gen. Sir S. B. Ellis, K.C.B., Royal Marines. From his own Memoranda. Edited by Lady Ellis. 8vo, pp. viii.—343. Saunders & Otley. 21s.

ETON Greek Verse Reading Book, for Use in the Fourth Form. With Short Notes in English. 12mo, cl. sd., pp. 55. Williams (Eton). Simpkin. 2s.

FLACK (Captain). Texan Ranger; or, Real Life in the Backwoods. With illustrations. Fcap. 8vo, pp. 319. Darton and Co. 3s. 6d.

FRANKLAND (Edward, F.R.S.). Lecture Notes for Chemical Students; embracing Mineral and Organic Chemistry. Cr. 8vo, pp. xx.—422. Van Voorst. 12s.

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PONBLANQUE (Albany, Jun.). How we are Governed; or, the Crown, the Senate, and the Bench. A Handbook of the Constitution, Government, Laws, and Power of Great Britain. Revised to the present date by W. A. Holdsworth, B.L. Fesp. 8vo, pp. vi.—214. *Warne*. 1s.

GASKELL (Mrs.). Mary Barton; a Tale of Manchester Life. 10th Edition. (Select Library of Fiction.) 12mo, bds., pp. 323. *Chapman and Hall*. 2s.

HALF-HOURS with the best French Authors. Short Passages from some of the most celebrated Prose Writers. Translated into English. With 30 Engravings on Wood. Sup. roy. 8vo, pp. xii.—395. *Seeleys*. 10s. 6d.

HAMILTON (W. J.). Star Eyes; or, the Susquehanna Rangers. A Tale of the French-Indian War. (Beadle's American Library, No. 68.) Fesp. 8vo, pp. 117. *Routledge*. 6d.

HANNAY (James) Singleton Fontenoy. A Naval Novel. New edition. Fesp. 8vo, sd., pp. 350. *Routledge*. 1s.

HEIRSS of the Blackburnfoot (The); a Tale of Rural Scottish Life. New Edition. (Monthly Volume of Standard Authors.) Fesp. 8vo, sd., pp. 251. *Smith and Elder*. 1s.

HORT (Mrs. Alfred) Hena; or, Life in Tahiti. 2 vols. Post 8vo, pp. 560. *Saunders and Otley*. 21s.

HUNT of the Glenkens (The); and other Interesting and Amusing Stories. By Eminent Authors. (Nimmo's Popular Tales, 5.) Fesp. 8vo, sd., pp. 256. *Nimmo*. 1s.

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SCIENCE.

THE BRITISH ASSOCIATION.

REPORTS.

*Second Report of the Committee for exploring Kent's Cavern, Devonshire.**

During the last twelve months the original rigorous method of excavation and examination had been uniformly followed, and the results had been most satisfactory. From the overlying black mould, mentioned in the previous report, a series of spindle whirls, a polishing stone, and a portion of a cake of smelted copper had been obtained. The whirls were all formed of slate, and some of them were highly finished, two being elaborately ornamented. In each branch of the cavern yet explored, bones of various animals and pieces of charred wood had been found in the stalagmite, but by no means abundantly. The red cave earth contained fragments of rock neither derivable from the cavern hill, nor, with the existing surface-configuration of the district, capable of being carried into the cavern, by natural agency, and most of them well rounded. Many of the long bones found had been split longitudinally, and so far as known, all thus split, as well as many others, were distinctly scored with teeth marks, probably those of the hyæna chiefly. It was difficult to suppose, either *a priori*, or from an examination, that less than human agency could have divided them; and it was obvious that unless gnawed soon after they were riven, they would scarcely be worth gnawing at all. So far as at present known, the labors of the last twelve months had failed to add a new species to the list of animals given in the first report. Remains of hyæna preponderated, the horse and rhinoceros were probably next in prevalence; no bones of hippopotamus or man had yet been met with, and, with one exception, the elephantoid relics were those of small individuals. One of the elephant's teeth was remarkable for its diminutiveness, being no more than 8-10ths of an inch long. Omitting chips and very inferior specimens, upwards of 70 flint implements had been found since the former report was drawn up, making a total of something more than 100. In the present stage of the investigation, the committee thought it neither desirable nor necessary to enter into any arguments to prove the artificial character of at least many of the flints found, which spoke for themselves, and in terms so unmistakable that if they did not succeed in carrying conviction to the mind of the observer, any words that might be employed would certainly fail also. Of the discoveries made, the uniform testimony was that beneath a thick floor of stalagmite, so difficult to work as to require excellent tools and untiring perseverance, there were found, inosculating with bones of extinct mammals, and undoubtedly inhumed at the same time, human industrial remains of a character so humble and so little varied as to betoken a very low state of civilisation.—Several cases of the "implements" and bones found in the cavern were exhibited by the writer of the paper, and the President followed up his observations by remarking that it was impossible to look at the flints, and not see that they were truly artificial, while as for the bones, they spoke for themselves.

Report of the Committee on the Transmission of Sound-Signals under Water.†

In the year 1826, M. Colladon made acoustical experiments in the Lake of Geneva. If these experiments should lead to an available means of communication between two ships in company at sea, or between a ship and the coast during foggy weather, an important purpose would be accomplished. At first the attention of the Committee was directed to repeating M. Colladon's experiments, substituting for the bell he employed cylindrical bars of steel from 6 to 8 feet in length, and from 1 inch to 1½ inch in diameter; these were supported on or suspended from their nodal

points, and struck with hammers of different weights at one of their ends, so as to excite them longitudinally. These experiments were made in the large water-trough of the Polytechnic Institution, and subsequently in the ornamental waters of the Regent's Park; the available distance in the former case was about seventy yards. Employing Colladon's ear-trumpet, the sounds were very distinctly heard, and the sounds through the air were separated from them by a distinct interval even at this short distance. The character of the sound was, however, very different in the two cases—that transmitted through the water being more abrupt, though in both cases they were mere blows or impulses, as the method of excitation was not intended to produce continuous musical sounds. Professor Hennessy, who resides on the sea-side, near Dublin, is willing to undertake such further experiments as would be required for testing the application of sound-signals in extensive spaces out at sea. Attention was next directed to the production of musical sounds under water. Those which appeared to be most available for this purpose were Cagniard de La Tour's syren, and pipes or whistles in which the vibrations were caused by currents of water in masses of the same liquid. When limited volumes of water were employed, powerful sounds were obtained in both cases; but in large reservoirs we met with an unexpected difficulty; for we found that musical sounds which could be heard through considerable distances in air, became totally extinguished at very short distances from the point of origin in water. The rapid extinction of musical sounds in water, renders it almost hopeless to employ them for communicating signals in that medium.

Dr. GLADSTONE supplemented the report by observing that he had repeated the more important of these experiments in the sea at Eastbourne. He and his children had taken two boats when there was considerable movement on the surface, and the sounds were produced from one boat while they were listened for from the other. The anaculator employed was a sort of ear trumpet, across the mouth of which a membrane of india rubber was stretched. Musical sounds were almost immediately stopped, while an iron bar struck longitudinally could be heard at a very great distance. In reference to the use of these sounds as fog signals, the original purpose of the committee, much would depend on what other sounds may interfere. Sounds produced in the air scarcely find their way into water, the reflection from the surface is generally perfect, even the paddle wheels of steamers in the Thames produced little noise under water; but at Eastbourne observations were made on the breaking of waves on the shingle, and it was found that it was necessary to go far from the shore before the rattling of the stones against one another was lost. This noise, like most others produced under water, resembled a series of sharp ticks, totally different from what is heard through the air.

*Report of the Palestine Exploration Fund.**

The expedition was placed under the charge of Capt. C. W. Wilson, R.E., with whom was associated Lieut. Anderson, R.E., and Corporal Phillips, as photographer. The party were well supplied with chronometers and other instruments, and their instructions were to make accurate and systematic observation between Damascus and Jerusalem. They were constantly occupied from December, 1865, to May, 1866. The present report embraced the topographical investigations only, which, however, were very important. Forty-nine separate places, the positions of which were before unknown, have been accurately fixed, both in longitude and latitude, detailed reconnaissance sketches for maps have been made, on a large scale, of the whole backbone of the country from north to south, and of several outlying districts, such as the basin of the Lake of Galilee, the district of Samaria, and the valleys between Jerusalem and the sea. Passages were read from reports by Capt. Wilson and Mr. Anderson, detailing the method pursued in obtaining the observations, and testifying how carefully and systematically their work was done. An arrangement had been made with Mr. Murray by which these maps would very shortly be made public, under the superintendence of Mr. Grove himself. The Report comprised a recommendation by Capt. Wilson that stations should be established and supplied with instruments for regular meteorological observations. Competent persons resident in the country had promised their services, and thus a great want would be supplied, as no observations on climate have been taken, except at Jerusalem and Damascus. Mr. Grove announced the intention of the Association to persevere, until every square

* This report was read by Mr. W. Pengelly in Section C.
† This Report was read by Professor Hennessy in Section A.

* This Report was read by Mr. G. Grove in Section E.

mile in Palestine has been properly and accurately surveyed and mapped; till every mound of ruins has been examined and sifted; the name of every village ascertained, recorded, and compared with the lists in the Bible; till all the ancient roads have been traced; the geology made out; the natural history and botany fully known. In furtherance of these intentions, a second expedition will shortly be sent out to excavate in detail at Capernaum, Cana, Samaria, Nazareth, and Jerusalem. Another party (of whom it was hoped Mr. Prestwich, the eminent geologist, would be chief) will attack the geology and the natural history, so ably begun by Mr. Tristram. A work on the modern Syrians is in preparation by Mr. Rogers, of Damascus, under the encouragement of the Palestine Fund, as a companion to Lane's "Modern Egyptians." The names of villages, &c., are being collected by a competent resident Arabic scholar, and five meteorological stations are to be appointed, to which instruments will be furnished under the sanction of the Kew Committee.

Section A.—MATHEMATICAL AND PHYSICAL SCIENCE.

On a New Geometrical Theorem relative to the Theory of Reflexion and Refraction of Polarized Light (Isotropic Media), by M. A. Cornu.

The direction of the luminous vibration relatively to the plane of polarization of a ray has not been yet stated in a way which is quite incontestable. Fresnel, in his admirable memoir "On the Mechanical Theory of the Reflexion and Refraction of Polarized Light," concludes that the vibration is perpendicular to the plane of polarization. M'Cullagh and Neumann have found again the same formulæ, but by supposing, on the contrary, that the vibration is within the plane of polarization. It seems that no middle term might exist between both these theories, and that the three rays have necessarily their vibration in the identical position compared with their respective plane of polarization. However, there is a third method, or, in other words, a third theory, extremely simple,—the author would not say extremely plausible,—which will lead us to the opinion of Fresnel respecting the refracted ray, and to the opinion of M'Cullagh respecting both the others. The only principle to be admitted, besides the exact transversality of the vibrations, is the following—the refracted vibration is perpendicular to the incident and reflected vibrations. We have, indeed, no theoretical ground for admitting, *a priori*, this principle; but if the consequences of it agree with the results of the other theories, it will merit to attract the attention of the theorists of optics, and, in fact, it will constitute a new theorem. With the help of this principle, it is easy to determine the position of the reflected and refracted vibrations, if the position of the incident vibration is given. The resulting formulæ are—

$$\frac{\tan \alpha}{\cos(i-r)} = \frac{\tan \beta}{\cos(i+r)} = \cot \gamma$$

in which α , β , γ are the angles of the incident, reflected and refracted vibrations with the plane of incidence, i and r the angles of incidence and refraction. Seeing that the vibrations are besides transversal, the above formulæ determine them completely. But if this theory is exact, those formulæ are nothing else than the analytical translation of the law of the rotation of the planes of polarization, of the three rays—a law first stated by Fresnel, and which, according to the same notations, may be written—

$$\frac{\cot \alpha}{\cos(i-r)} = \frac{\cot \beta}{\cos(i+r)} = \cot \gamma$$

α , β , γ being the angle of the vibration with the plane of incidence. M'Cullagh arrives, on the contrary, at the expression—

$$\frac{\tan \alpha}{\cos(i-r)} = \frac{\tan \beta}{\cos(i+r)} = \tan \gamma$$

It is obvious that our formulæ agree with the formulæ of Fresnel for the refracted ray, and with the formulæ of M'Cullagh according to the incident and reflected rays. It is easy to conclude, from this theory, that under the normal incidence the luminous vibration rotates a right angle when the ray penetrates in the second medium. It would be interesting to look for a direct verification of that conclusion; but it seems difficult to realize an experiment in which the surfaces limiting the medium do not produce an even number of those rotations, so that the vibration does not come again to its first direction. The author could have exposed that property of polarized light under a more modest form,—that is to say, as a simple corollary of known theorems; but he fancied that it was more useful, in the actual state of optics, to erect it as a new theory, in order to show, first,

that the geometrical simplicity of the principles does not constitute the most plausible theories; thus it is prudent to conclude that the greater geometrical simplicity of the M'Cullagh theory is no sufficient ground to reject the theory of Fresnel, though more complicated. Besides, the proposal of a new principle, very little obvious *a priori*, is a good occasion to remember the feeble degree of evidence of the principles used in the other theories. After a further examination, it will appear that it is neither more nor less difficult to admit that the refracted vibration is perpendicular to both the others, than to admit, for the luminous ether, the same density in all the media like Fresnel, or the same density like M'Cullagh.

On a Nomenclature for Multiples and Sub-multiples to render absolute standards convenient in practice, and as the fundamental unit of Mass, by Mr. G. J. Stoney, F.R.S.

Letter from Professor Matteucci on Earth Currents.

The letter commenced by stating that the Professor deeply regretted his inability to be present at the meetings of the Association, which he considered to be an institution which ought to take root in Italy. The letter contained several recommendations with regard to Earth Currents, and Mr. Grove, who read the letter, supplemented it by some of his own observations, stating that the Professor's recommendation simply was, that amalgamated zinc plates should be used. The President wished them to bear in mind that on Professor Matteucci devolved the whole of the telegraphic management of Italy, and expressed his sorrow that his health was in a very indifferent state.

Conversion of Wind Charts into Passage Charts, by Mr. Francis Galton.

The paper was illustrated by three large diagrams, showing the direction of different currents. On the conclusion of the paper, Mr. Maury made a few observations upon its subject matter, and said that all the suggestions it contained had been actually carried out. He detailed a little of his own experience in ocean travelling, which was very well received by the section.

On Comets, and especially on the Comet of 1811, by Mr. Cornelius Varley.

The author illustrated his remarks by drawing a sketch of the latter on the black board, and entered at length into the question of the constitution of comets.

On some Recent Improvements in Astronomical Telescopes with Silvered Glass Specula, by John Browning.

On the method adopted at Utrecht in Discussing Meteorological Observations, by Dr. Buys-Ballot.

On the Partition of the Cube, by C. Willich.

Remarks on Boole's Mathematical Analysis of Logic, by Professor R. Harley, F.R.S.

In the first place the author gave some account of Boole's system. He contended that in that system the fundamental laws of thought are deduced, not, as has sometimes been represented, from the science of number, but from the nature of the subject itself. Those laws are indeed expressed by the aid of algebraical symbols, but the several forms of expression are determined on other grounds than those which fix the rules of arithmetic, or, more generally of algebra; they are determined, in fact, by a consideration of those intellectual operations which are implied in the strict use of language as an instrument of reasoning. In algebra, letters of the alphabet are used to represent numbers, and signs connecting those letters represent either the fundamental operations of addition, subtraction, &c., or a relation among numbers. In Boole's calculus of logic, literal symbols represent things as subjects of the faculty of conception, and other symbols are used to represent the operations of that faculty, the laws of the latter being the expressed laws of the operations signified. The canonical forms of the Aristotelian syllogism are really symbolical; but the symbols are less perfect of their kind than those which are employed by Boole. This calculus does not involve a reduction of the ideas of logic under the dominion of number, which would be most unphilosophical; but it rests on a fact which Boole has rigorously established, viz., that the ultimate laws of logic—those alone upon which it is possible to construct a science of logic—are mathematical in their form of expression, although not belonging to the mathematics of quantity. The term mathematics is used in an enlarged sense as denoting the science of the laws and combinations of symbols, and in this view there is nothing absurd in regarding logic as a branch of mathematics, instead of regarding mathematics as a branch of logic. The symbols of common algebra are sub-

ject to three laws, viz., the law of commutation, the law of the convertibility of terms, and the law of distribution. These laws are fundamental; the science of algebra is built upon them. And they are axiomatic. Boole has shown that the same laws govern the symbols of logic, and that therefore in the logical system the processes of algebra are all valid. But at the root of this system there is found to exist a law, derived from the nature of the conception of class, to which the symbols of common algebra are not in general subject. These points were elucidated at some length; and it was shown that propositions and systems of propositions, might be represented by equations involving algebraical symbols which are subject to laws identical in form with the laws of a system of quantitative symbols. Examples were given of the application of the method. In the second place Professor Harley called the attention of the Section to some very remarkable anticipations of Boole's views by the illustrations of Leibnitz. R. Leslie Ellis seems to have been the first to notice these anticipations, which occur in a paper by Leibnitz, entitled, "Difficultates quædam logicæ."

On a Defect in the Demonstrating Polariscopes, with a Simple and Effective Remedy, by Mr. J. Traill Taylor.

The author stated that, having been engaged in some experiments with polarised light, projected on a screen by means of the oxyhydrogen lantern, he discovered that even the best instruments which were constructed were inefficient, inasmuch as none but the axial rays transmitted through the condensers were polarised, the main body of the luminous cone undergoing reflection from the polariser without being really polarised. He remedied this by intercepting the light with a flint concave lens before it reached the polariser, so that the whole mass of rays being projected in a parallel direction was completely polarised. On leaving the polariser, the rays were again converged, before passing through the crystal or other object to be exhibited, by a small achromatic lens which thus acted as an achromatic condenser. It was stated that this arrangement effected a most important increase in the brilliancy of the object exhibited on the screen.

Mr. BROWNING said it was an admirable invention, and he had no doubt would be applied to other optical instruments.

The PRESIDENT said the proposed arrangement undoubtedly remedied a positive defect.

On the Large Prime Numbers calculated by Mr. Barratt Davis, by Mr. H. J. S. Smith.

Starting from 100 millions, Mr. Davis had calculated the prime numbers up to one hundred millions six thousand two hundred. This, Mr. Smith stated, involved immense labour, and the results, as well as being very curious, were of value in enabling them to verify theories which were put forward.

Section B.—CHEMICAL SCIENCE.

Proposed Use of Fluorine in the Manufacture of Soda, by Mr. Walter Weldon.

The author said, that taking advantage of the fact that the reaction between sulphate of sodium and hydrofluoric acid yielded, without any destruction of sulphuric acid, a compound as readily caustifiable as carbonate of sodium itself, he thought it would prove practicable to base a manufacturing process by means of which soda shall be produced, not only, if not exactly without the use, at any rate without any consumption of sulphuric acid, and actually without the consumption of any materials whatever excepting salt and coal, all the reagents employed being recovered for use over and over again continually. The first of a series of four operations by which this object can be readily accomplished, consists in the production of sulphate of sodium by double decomposition between chloride of sodium and sulphate of magnesium having associated with it at least one atom of water, the products, besides sulphate of sodium, being magnesia and hydrochloric acid; the second operation consists in treating the sulphate of sodium so obtained with hydrofluoric acid, thereby producing fluoride of sodium and bisulphate of sodium; the third operation consists in decomposing the fluoride of sodium obtained in the second operation by means of the magnesia obtained as one of the results of the first operation, and so obtaining caustic soda and fluoride of magnesium; and the fourth operation consists in the decomposition of the fluoride of magnesium thus produced in the third operation by means either of the bisulphate of sodium obtained in the second operation, or of its second equivalent of sulphuric acid, separated in any convenient way, with reproduction of sulphate of magnesium, with

which to repeat the first operation, and of hydro-fluoric acid, with which to repeat the second operation. All the re-agents employed for the transformation of salt into soda by this method, are thus continually reproduced, the only materials consumed being the salt and a comparatively small quantity of fuel. The second of the four operations thus described, requires no fuel at all, the re-action between sulphate of sodium, and hydro-fluoric acid, taking place at ordinary temperatures. The third operation requires some fuel, but not much, the caustification of fluoride of sodium by means of magnesia, though requiring some special arrangements and precautions, being almost as easy as the caustification of carbonate of sodium by lime; and the fourth operation requires even less fuel than the third, the decomposition of fluoride of magnesium by sulphuric acid taking place, though perhaps not quite quickly enough, at ordinary temperatures, and proceeding with great rapidity when the temperature is only moderately raised. The only one of the four operations, which requires nearly as much fuel as either of the furnace operations of the ordinary soda process is the first operation. The author then described a shorter and simpler process, which he hoped to be able to carry out on a manufacturing scale, at no distant date. He mentioned that fluoride of sodium can be produced by acting with hydrofluoric acid directly upon chloride of sodium itself. When strong hydrofluoric acid is added to a saturated solution of chloride of sodium, the whole instantly becomes milky-looking, and there is gradually formed a precipitate consisting of fluoride of sodium mixed with fluoride of calcium and fluoride of magnesium if any chloride of those metals was present with the salt, a quantity of hydrochloric acid equivalent to the fluorides formed being produced at the same time. By this method, however, only a part of the chloride of sodium is transformed into fluoride, but a much better result is got by passing hydro-fluoric acid gas into the solution of chloride of sodium, care being taken first to cool the gas, and not to pass it in too rapidly; and there is reason to expect that by proceeding in this way and adopting other precautions it will prove possible to convert chloride of sodium completely into fluoride. The consumption of sulphuric acid in the British soda manufacture during the current year will probably amount to over 350,000 tons, the consumption of limestone to over half a million tons, the consumption of coal to about one and a quarter millions of tons, and the production of useless residue to at least a million and a half tons. The suggestion embodied in this paper would save all the sulphuric acid, all the limestone, and probably half the coal, besides effecting other important economies.

On the Sources of the Fat of the Animal Body, by J. B. Lawes, F.R.S., and Dr. J. H. Gilbert, F.R.G.

In 1842 Baron Liebig had concluded that the fat of Herbivora must be derived in great part from carbo-hydrates of their food, but might also be produced from nitro-genous compounds. Dumas and Boussingault had at first opposed this view; but subsequently the experiments of Dumas and Milne-Edwards with bees,—of Persoy with geese, of Boussingault with pigs and ducks, and of the authors with pigs, had been held to be quite confirmatory of Liebig's view, at any rate, as far as the carbo-hydrates were concerned. But at the Bath meeting of the British Association in 1864 Dr. Haydon expressed doubt on the point, and at the Congress of Agricultural Chemists, held at Munich last year, Professor Voit, from the results of experiments with dogs fed on flesh, maintained that fat must have been produced from the nitro-genous constituents of the food, and that these were probably the chief if not the only source of the fat men of the Herbivora. Baron Liebig disputed this conclusion, and his son, Hermann V. Liebig, has since sought to show its fallacy by reference to cows. The authors agreed with the conclusions of these latter authorities, but pointed out the inadequacy of the data relied upon by Hermann V. Liebig. They showed that, owing to the much less proportion of alimentary organs and contents, the higher characters of the food, the much larger amount of fat produced, both in relation to a given weight of animal within a given time and to the amount of food consumed, the much less proportion of the solid matter of the food that passed off in the solid and liquid excretions, and finally the larger proportion of fat in the increase, results obtained with pigs must be much more conclusive than those with either cows, oxen, or sheep. Numerous tables were exhibited, showing the results which had been obtained by the authors in experiments with pigs, from which the following conclusions were drawn:—1. That certainly a

large proportion of the fat of the Herbivora, fattened for human food, must be derived from other substances than fat in the food. 2. That when fed on the most appropriate fattening food, much of the stored up fat must be produced from the carbo-hydrates. 3. That the nitro-genous constituents may also serve as a source of fat, more especially in defect of a liberal supply of the non-nitro-genous ones.

On the Accumulation of the Nitrogen of Manure in this Soil, by J. B. Lawes, F.R.S., F.C.S., and Dr. J. H. Gilbert, F.R.S., F.C.S.

The authors had been engaged for many years in experiments, in the course of which they had grown wheat year after year on the same land for more than 20 years; on some portions without any manure, and on others with farm-yard manure, or with various descriptions of manure. They had published the results obtained in the field during the first 20 years of these experiments, and they were now engaged in investigating the composition of the produce grown under the different conditions; and, also, the comparative composition of the soils of the different plots as affected by the various treatment. The point to which they chiefly confined attention on the present occasion was the accumulation, and the loss, of the nitrogen, which had been supplied in the manure, and not recovered in the increase of crop. After discussing the difficulties of sampling, preparing for analysis, and analysing soils, in such manner as to yield results applicable to the purpose of their enquiry, and describing the methods they had adopted, they called attention to the results they had obtained, which were exhibited in several tables hung up in the room. The percentage of nitrogen determinable by burning with soda-lime were given for the soil of the first, of the second, and the third nine inches, of the eleven differently-manured plots, showing the amounts, therefore, to the depth of 27 inches in all. In some cases the accumulation from the residue of manuring was very considerable, but even with the same amount supplied it varied, both in total amount, and in distribution, according to circumstances; the depth to which the unused supply had penetrated being apparently influenced by the character and amount of the associated manurial constituents. The general result was, that although a considerable amount of the nitrogen of the supplied manure, which had not been recovered as increase of crop, was shown to remain in the soil, still a larger amount was as yet unaccounted for. Initiative results indicated that some existed as nitric acid in the soil, but it was believed the amount so existing would prove to be but small. In fact it was concluded that a considerably larger portion would remain entirely unaccounted for in the soil, than was there traceable, and the probability was that at any rate much of this had passed off as nitric acid into the drains, or into the lower strata of the soil. Finally, it was shown, by reference to the field results, that there was not more than one or two bushels of increase in the wheat crop per acre per annum due to the large determined residue of nitrogen in the soil, notwithstanding its amount was many times greater than that which would yield an increase of 20 bushels or more, if applied afresh to soil, otherwise in the same condition. On the other hand, it was shown that the effect of an accumulated residue of certain mineral constituents was not only very considerable in degree, but very lasting.

Section C.—GEOLOGY.

On the Anglo-Belgian Basin of the Forest-bed of Norfolk and Suffolk, and the Union of England with the Continent during the Glacial Period, by the Rev. J. Gunn.

A question of the greatest importance has been raised by Mr. Godwin-Austen with reference to the extension of the Belgian coal measures to this country. It was evident that in the mesozoic period, the continuous ranges of chalk in Belgium, France, and England, formed a basin, in which tertiary were deposited. The writer of the paper, after researches carried on upwards of thirty years, had come to the conclusion that the forest bed was the estuarine deposit of some great river or rivers flowing westward, closed on the south by a ridge of chalk-hills, and open to the sea on the north; and that such ancient river or rivers were now represented by the several rivers flowing into the German Ocean between the mouths of the Scheldt and the Rhine. Thus there might be said to be on the English coast the remains of an estuary without a river, and on the Belgian side of a river or rivers without an estuary. The author followed up a description of the deposits by a remark that he strongly suspected the disruption of this country from the Continent took place at a more recent period than was assigned to it by geologists generally. His impression was

that the forest-bed and the crag series which preceded it could only be studied to advantage in connexion with and as part of the corresponding beds of the Continent.

The PRESIDENT said he began to strongly suspect that even the valley of the Thames might be filled with glacial drift, showing that it was submerged during the glacial period.

On the Relations of the Upper and Lower Crag, near Norwich, by Mr. J. E. Taylor.

The author stated that three years' labour on the Norwich Crag had led him to question the existing classification of the several crags. Published tables showed that, both from the percentage of recent and extinct shells, and also from the number of species, there was a greater difference between the Red and the Norwich Crag than between the Red and the Coralline. The difference between the latter was hardly in the proportion of three to two, whereas the difference betwixt the Red and Norwich Crag was more than three to one. In spite of that seeming anomaly, the conviction had been growing that the Red and Norwich Crag were more nearly related than were the Red and Coralline. The explanation now to be offered was intended to remove that difficulty. In various parts of Norfolk, as at Coltishall, &c., there lies at some height above the true Norwich Crag another bed of shells, varying in height from three feet to fifteen. These two beds were widely different in their organic remains, the upper bed being peculiar from the total absence of fresh and brackish water shells, those it had being marine; secondly, the shells of the upper bed indicated that it had been formed in deeper water; and thirdly, the shells were also of a more Arctic character. The author then gave a list of the shells, and went on to say that the lower crag, or true Norwich, was everywhere distinguished by its littoral character, as also by the frequency of fresh and brackish water shells, constituting it a fluviomarine deposit. It had been the custom hitherto for geologists to class both these beds as belonging to the Norwich Crag series, hence the apparent difference between the latter and the Red Crag. If the Norwich Crag were confined solely to the beds always found resting on the chalk, it would approximate more nearly to the Red Crag; but by taking the mean of the upper and lower beds, and summing up the total as belonging to the Norwich Crag, they departed from the true character of each, as well as from their relations to the Red and Coralline Crag. Referring to Mr. Searles Wood's "Monograph," Mr. Taylor proceeded to combat his opinion that the true Norwich Crag is the representative of the Red, comparing the shell deposits of both, and pointing out their differences. In the same manner (although these beds were more nearly related) the upper and lower beds in Norfolk differed as regarded the universal abundance of species; indeed, the upper bed was as distinct in the circumstances climacteric, &c., of its disposition from the Norwich Crag as the latter was from the Red. From this Mr. Taylor deduced the separate existence of four crags instead of three—the Coralline, Red, Norwich, and Upper. He added that he regarded the upper crag, not only as really departed from the Norwich, but as furnishing a connecting link with the glacial series; and regarding it as such, they had an unbroken sequence of deposit from the Coralline Crag to the latest drift beds.

Mr. SEELEY said it was impossible to divide the classification of the Norwich Crag by arrangement of its fossils. With regard to the presumed Arctic character of those shells, which had been so much insisted upon, nothing could be more erroneous than to assume climate from the life of shells. It would be just as reasonable to suppose that you could infer the warmth of the clothing which a man had worn from finding his skeleton. Until they were able to correlate those beds by a knowledge of the physical conditions, it would be only to prejudice palæontology to push these assumptions to over-definite conclusions.

The Rev. J. GUNN said he agreed very much with the observations of Mr. Seeley, but, as the President of the Norwich Geological Society, of which Mr. Taylor was the secretary, he thought it was due to the author of the paper that it should be pointed out that he was the first to point out the existence of a bed below the upper one of the crag, which contained more recent shells.

On the Peculiar Denudation of a Coal Seam in Coate's Park Colliery, by Mr. J. Oakes.

The author ascribed it to the action of a stream. In a discussion that ensued, similar phenomena, met with in Yorkshire, Shropshire, and the Forest of Dean, were referred to.

The PRESIDENT thought there could be no doubt as to the cutting out of the seam by running water.

On the Characters of Dolichosaurus, a Lizard-like Serpent of the Chalk, by Mr. H. Govier Seeley.

For the most part the author's remarks were given *viva voce*, and went into minute anatomical peculiarities, illustrated by reference to specimens, and by diagrams on the black board. His general conclusion was that the fossil indicated a new type of creature between the serpent and the lizard, making it of great interest to geologists.

Mr. ETHERIDGE said, though it might not be free from doubt, it was a matter of great importance, from its bearing on the question of temperature, and he hoped Mr. Seeley would pursue his researches.

The PRESIDENT remarked that the fossil was of a very curious character, and they were much indebted to Mr. Seeley.

On the Carstone, by the Same.

On Raised Beaches, by Mr. W. Pengelly.

Section D.—BIOLOGY.

On the Power which some Rotifers have of attaching themselves by means of a Thread, by Mr. R. Garner.

On Reversed Sexual Characters in a Butterfly, and their Interpretation on the Theory of Modifications and Adaptive Mimicry (illustrated by specimens), by Mr. A. R. Wallace.

In this paper the author, who is an independent originator of the theory advanced by Darwin, gave the result of some of his own and Mr. Bates's observations on the origin of species in Lepidoptera. The Heliconidae, a group of butterflies with a powerful odour, such as to cause birds to avoid eating them, were simulated by the females of another group, which had no smell, and might otherwise fall ready victims to birds. By their great resemblance to the obnoxious butterflies, the scentless females were enabled to escape pursuit, and deposit their eggs. In different regions there were different species, thus imitating and being imitated. Mr. Wallace conceived that this case was a crucial test of the truth of the Darwinian doctrine. The females least like the Heliconidae had always been more subject to destruction, and consequently by this process of natural selection the present state of very close resemblance had resulted.

Professor HUXLEY cautioned Mr. Wallace against considering this as a decisive case. It was explained quite as completely by the teleological doctrine of the late Dr. Paley.

Mr. HERBERT SPENCER thought he could show that the case described by Mr. Wallace could not be satisfactorily explained by Dr. Paley's teaching. He understood Mr. Wallace that the imitation was not complete, and varied in different individuals. This incompleteness was not to be explained were we to assume that the one butterfly was made in imitation of the other by the Creator; but it was readily accounted for by the law of evolution.

Notes on the Structure of the Echinoidea regularia, with special reference to their Classification, by Mr. C. Stewart.

The author of this, a very valuable and suggestive paper, dwelt on the importance of the minute structure of the hard parts of the Echinoidea as bases of classification. He particularly drew attention to a series of calcareous spicules, entirely new, discovered by himself, scattered in the alimentary canal, and highly characteristic of the different genera and species.

On the Asexual Reproduction and Anatomy of Chatogaster vermicularis (Müll.), by Mr. E. Ray Lankester.

The Chatogaster is a minute worm, one-eighth of an inch long, parasitic on the common water-snail. Its most remarkable peculiarities are, the presence of oral bristles, differing from those of the body, the very small number of segments (five) composing it, and the total absence of cilia and reproductive organs. The author described its anatomy minutely, and its mode of reproducing by budding.

Section D.—DEPARTMENT OF PHYSIOLOGY.

On a peculiar Change of Colour in a Mulatto, by Balthazar Foster, M.D.

Dr. Foster exhibited some beautiful photographs of a Mulatto whose skin was undergoing change of colour—changing, in fact, from dark to white. The man was in moderate health, but rather feeble. Where the white skin had been blistered there had been return of black pigment.

On the Action of Carbonic Oxide on the Blood, by Arthur Gamgee, M.D.

When carbonic oxide is passed through venous

blood it acquires a persistently florid colour, which was first pointed out by Claude Bernard, and the colouring matter, although it possesses a spectrum identical with that of ordinary blood, is distinguished from it by not yielding, when treated with reducing agents, the spectrum first described by Stokes as that of reduced or purple cruorine. This property of carbonic oxide blood was first pointed out by Hoppe. As a result of his own investigations, Dr. Gamgee has found:—First, that the peculiar compound of carbonic oxide and blood-colouring matter is formed even when the latter has been reduced, and is still in the presence of a large excess of a reducing solution. Secondly, that when the compound of carbonic oxide and colouring matter is treated with acetic acid, whilst hæmatine is formed, carbonic oxide is disengaged. Thirdly, that carbonic oxide, besides modifying the optical properties of the colouring matter of blood, affects in a remarkable manner the point at which it coagulates, so that, under its influence, an almost perfect separation of hæmatoglobulin (using the term to express the normal colouring matter of the blood) from the albumen may be effected. Normal ox's blood, when diluted with nine times its volume of water, becomes turbid at 145° Fahr., and when the temperature has reached 172° Fahr. its colour is completely destroyed. If such a blood solution have been treated with carbonic oxide, whilst, when the temperature has been raised to 172°, the albumen has separated in flakes, the blood-colouring matter remains wholly unchanged. It is only when the temperature is raised to about 185° that the colouring matter commences to coagulate. The coagulum which is obtained on further heating is of a reddish colour, unlike that of normal blood. Fourthly, if blood be saturated with CO, and evaporated to dryness at a temperature below that at which the colouring matter coagulates, the dry residue yields its colouring matter to water, and the solution presents all the optical properties of carbonic oxide blood. When this solution is boiled, the compound with the colouring matter yields carbonic oxide gas. Fifthly, poisoning by pure carbonic oxide, or by the fumes of charcoal, invariably leads, before death occurs, to those changes which are characteristic of carbonic oxide blood—becoming quite irreducible. Sorby's micro-spectroscope answers admirably for these investigations; and the solution which Dr. Gamgee recommends for this special process is one containing tin, in preference either to sulphide of ammonium or protoxide of iron. Sixthly, whilst it results from Dr. Gamgee's researches that no gas or poisonous agent exerts the peculiar action on blood-colouring matter which is produced by CO, it is specially to be noticed that prussic acid and laughing gas, which have the power of rendering blood florid, do not prevent its being reduced. Thus, the question which Claude Bernard suggested some years ago, as to whether prussic acid exerts on blood a similar action to that of carbonic oxide, is answered in the negative.

On the Conditions of the Protoplasmic Movements in the Egg of Osseous Fishes, by Dr. Ransom, M.D.

Dr. Ransom, by means of diagrams, exhibited the phenomena seen in the yolks, first, of unimpregnated eggs. Next, after water has entered, he showed not only a distension of the outer rim, but a diminution of the yolk ball, the separation of the food yolk then taking place. The normal contractions shortly after impregnation were then described. After some days these protoplasmic contractions cease; fissile contractions commence. Carbonic acid produced the most remarkable changes, and these he illustrated by means of a series of diagrams. Ultimately it causes chemical changes in the matter of the food yolk. He continued this inquiry on the eggs of the pike, both impregnated and unimpregnated. He specified the effect and non-effect of various acids and other chemicals in arresting the rhythmic movements of the yolk. Chloroform was the only thing that had any decided effect. Weak solutions of acetic acid disturbed, but did not derange, the action, as carbonic acid did. Galvanism was also applied to the eggs of the stickleback. Very weak currents caused slight peristaltic action, and stronger currents ruptures in the inner sac. These effects were also shown in the diagrams. He attempted to abstract heat, and restore the action by galvanic currents. Galvanised by the weakest currents, distinct contractions were exhibited; but the eggs must have been deriving heat, during the experiment, from the instrument. A temperature too low retards the contractions, but they are not destroyed before 104° Fahr., an action similar to what takes place in the use of poisons. From these experiments it appears that the rhythmic contractions and the cleavage are not destroyed

before oxygen is gone. The yolk contractions cease earlier in ova which contain most eggs, and cease last in those nearest to the air-bubble, showing the importance of oxygen. And the inference is, that the influence of oxygen is not to be denied in the production of these contractions, although its quantity must be small.

Dr. BENNETT entered into the question of the nature of these contractions. They had no relation to the development of the egg—they had relation only to a homogenous plasma. He gave many instances of contractions, even in structures absolutely structureless, as well as in the higher organisms, but if they saw such movements in the entire yolk of an ovum, it was very remarkable. Were these owing to any inherent power of contractility, or conditions from without, or both united? It appeared to him that this should be watched with interest.

Section E.—GEOGRAPHY AND ETHNOLOGY.

On the Voguls, by Dr. H. Ronay.

The Voguls are a people of Northern Asia, residing on the river Vogul. They call themselves, as well as their neighbours, the Osztjaks, "Mancsi-s." The name Vogul was given to them by the Szirjan merchants, who in their mercantile pursuits beyond the Ural mountains, called these people, who lived on the river Vogul, "Voguls," and those on the river Ob, "Osztjaks." The Voguls are of dark complexion, small in stature, and closely allied to the Finnish type. Their principal occupations are fishing, hunting, and bird-catching. Agriculture is not to their taste, nor do they devote themselves to it, unless compelled by necessity, which is the case in the south of Pelim and Loszva, where they have begun to keep cattle. The food of the Voguls is very simple: air-dried or boiled fish and meat all the year round. Those in the south eat bread, and sometimes make use of salt, but in general the Voguls eat their food without salt, and to this, it is believed, may be ascribed the fact that they do not suffer from scurvy, not even in marshy places. They are goodnatured, cheerful, and talkative, but extremely superstitious, idle, and indolent. When Strahlenburg visited them in 1722, perjury, theft, and adultery, and excess in drinking was scarcely known to them: but since then the vices of their more civilized neighbours have reached them. Women are regarded as inferior beings, and the girl, when of age, is given in marriage by her father to the highest bidder. In the neighbourhood of Obdoszk, a rich person has to give for his future wife from 50 to 100 reindeer, a poorer man from 20 to 25. Polygamy, though allowed, is of rare occurrence. A man can marry two sisters, but brothers and sisters do not intermarry; and the younger brother is allowed to marry his elder brother's widow. The dwellings are of wood or bark. Two or three of such dwellings are called a village. Once the whole nation was divided into families. The number of individuals belonging to one family amounted sometimes to several hundreds, and they were ruled by the oldest among them. All these families, however, acknowledged the supreme power of an hereditary native prince. Under the Russian rule there are scarcely any traces to be met with of the old patriarchal government. The commerce of the Voguls is a mere exchange, as they scarcely ever receive money for the skins and fish which they offer for sale, but flour, cloth, linen, arms, &c. In these transactions the people are generally twice imposed upon, for the price of the skins and fish sold is fixed by the merchant, as well as the price of the articles exchanged. The Voguls acknowledge a supreme heavenly being, called Numi-Tárom (Upper God, High Time), the Creator and the Ruler of the earth, to the existence of which he does not contribute immediately, but through the instrumentality of "Elem-pi," the son of men. It is their belief that Numi-Tárom does not listen to men; he rules the world according to established principles, from which he never departs, for he grants happiness to men, as they deserve it; consequently it would be useless to pray to him; but each family or tribe has its own lower or particular God, to whom they pray in necessity, and whose assistance they implore with gifts and sacrifices. It is only since 1848 that Christianity has made any progress amongst the Voguls, though it is more than a century since priests of the Greek Church were sent to them, but all the missionaries did at that time was to destroy their idols, to christen their children, occasionally to bless their marriages, and bury their dead. The Vogul goes once or twice a year to church, signs his forehead with a cross, leaves the church indifferently, and secretly returns to his idols. The Voguls are called Christians, and pretend to believe in Christ, but with very few exceptions

this religion is a singular existence of Christianity and Paganism. The author concluded by reading some extracts from a translation of the "Legend of the Creation of the Earth," originally written in the Vogul or Mansi language.

Notes on Eastern Persia and Western Beluchistan, by Col. Goldsmid.

In December, 1863, the author found himself engaged in an enquiry which promised to supply new information of interest on the western shores of Mehran, or that portion of Beluchistan, situate between 56° and 62° E.L. At that same period the late Colonel Patrick Stewart was about to lay the telegraph cable in the Persian Gulf. He had instructions to accompany the telegraph expedition, and consequently had but a hurried visit to Chaubar and Swetten, small ports west of Gwadar. A brief description of these places was given in the paper to supply what might otherwise appear to be a wanting link in an Overland journey from the Caspian to Kurrachee. In reviewing the geographical results of the journey, the author called attention to the useful work of Khanikoff, published some five years ago at Paris, under the title "Memoire sur la Partie Meridionale de l'Asie Centrale." The upper regions of Beluchistan offered great facilities for the laying of a coast cable which would give the means of rapidly communicating with the East. He thought all would admit that the land line possessed greater advantages than the submarine cable.

Captain MAURY remarked that many special advantages would accrue to this country from the encouragement of telegraphic lines to our great Indian possessions, because, when once established, they would become, as it were, stepping stones to the rising powers of the colonies of Australia.

Notes on the Physical Geography of Sind, by Colonel Tremeneheere, C.B.

The province of Sind extends from Mittee on the north, where it joins the Panjab, to the sea, near the mouths of the Indus, and contains a continuous plain, varying in width, through which the river Indus passes. The Indus, like other tropical rivers, is subject to annual inundation, the extent of which has been carefully registered for many years, both at Sukkur and at Kotree. At the former place the rise from the low season level amounts to from 13 to 15 feet, while at Kotree, though lower down the river, the rise is generally about 2 feet more. The amount of silt contained in the river water is remarkably great. The old channels of the Indus are still of very considerable size, and it is an interesting question whether they indicate the course of the river, or of any of its branches, at any former period. The country between the Narra and the present course of the river contains many remains of old channels, some of which extend for many miles continuously, and have well defined banks, with a glacis on each side. They have in many cases very tortuous courses, but are straighter as they approach the sea. There are so many of these old channels to the eastward of the present course of the river, while such marks are rare and indistinct to the westward, that one is led to the conclusion that the river has gradually worked to the westward. It is possible that formerly the chief outlets of the river may have been by these channels, and that the accumulation of enormous deposit derived from the river in the run, in conjunction with an upheaval of the land on the border of the run, which there are grounds to believe took place in 1819, may have forced the river to form new channels to the ocean. The author thought it might be generally stated of rivers, flowing through plains, that the larger the body of water, and the less the surface slope of the plain, the more direct will be the course of the river; and on the contrary, the sharpness of the bends of a large river flowing through such a plain will indicate the existence of a considerable slope. The longer a river becomes by extending its Delta to seaward, the greater tendency will there be to assume a more direct course. The lift of the tides on this coast varies from 8 to 11 feet at spring. Their course is in a direction parallel to the coast line, the flood-tide coming from the north-west, and the ebb running in the opposite direction. During the monsoon months there is a current in the offing settling to the south-east in a direction contrary to that along the coast, which has been described. Both currents are produced by the same cause, the action of the long-continued sea stroke on a coast-line forming a considerable angle with the crests of the monsoon waves. By the action of the current in the offing, it is probable that much silt which has been swept to the northward as far as Kurrachee Harbour may be again carried to the southward, and be eventually deposited in the eastern Delta channels, or carried into the Run of Catch. The action which he

endeavoured to trace must have a considerable influence in checking the growth of the Delta of the Indus to seaward, the surf of each successive monsoon exerting its immense power in removing any deposit which would otherwise tend to extend the channel, by which the river discharges itself into the ocean. The progress of the Delta to seaward is thus dependent upon the advance of the whole coast line between the mouths of the river and Ghirzee, a process which must be extremely slow.

Mr. MARKHAM said that upwards of a million sterling had been expended upon the harbour of Kurrachee, which, however, was in a worse state than it was when the works were commenced.

On the Kaffirs of Natal, by Dr. Mann.

In addition to the 20,000 white inhabitants of the colony of Natal there were no fewer than 200,000 black skins, who recognised Queen Victoria as their sovereign. The native Kaffirs had increased twenty-fold in numbers in the course of the last thirty years. The Zulu race was originally a mere handful of men, but owing to the talent of one of their chiefs some years ago, they had succeeded in attaining to a position of considerable importance. The ability to work was one indication of what might be done with the Kaffir race. Last year no fewer than 13,000 Kaffirs were working for English masters, and in addition to these a great many were gathered round the missionary settlements, and were working on their own account. At one of these settlements the Colonial Government, about four years ago, established a sugar mill at a cost of some thousands of pounds, in order that the Kaffirs might be enabled to grow their sugar and send it there to be manufactured. In the neighbourhood of that mill 56 Kaffirs were now living in houses, and two of the number possessed property worth £2,000. Then there was a school, where the children were taught English alone, and Kaffirs in the neighbourhood contributed no less than £75 per annum towards supporting the teachers. At the present time there were 12,000 Kaffir children who were being taught English in the colony. The Kaffirs belonged to two distinct types. First, there was the negro type well developed, and then there were men with compact round foreheads, bright clear eyes, and slim arms. The latter race were untameable. The author did not doubt that in process of time it would be found that these two races would split into two, and there would be slowly formed a servile race. With respect to the missionary influence he remarked that though the Bishop of Natal had worked very hard indeed, he had not done much in the way of improving the condition of the Kaffirs. He had expended a large amount of money in erecting a school, where a number of boys attended for some time, but the school was now scattered, and all the boys had gone to live among the wild tribes. As a rule the missionaries had made a great mistake in assuming that a barbarian savage could be turned into a Christian by a kind of chemical process. Now this was against the law of nature, for to make a man a sound Christian he must be civilised first. He knew one missionary who had made only one convert during thirty-six years of labour.

Section F.—ECONOMIC SCIENCE AND STATISTICS.

On the Consumption and Cost of Intoxicating Liquors in the United Kingdom in 1865, by Mr. Wilkinson.

The author said that of gin and whisky 20,811,155 gallons were consumed, and of rum and brandy 6,732,217 gallons, the wines charged with duty were 11,993,670 gallons, whilst the malt for brewing was 47,249,093 bushels, giving an average of 24½ gallons per head from the youngest to the oldest. The gallons of alcohol consumed were 52,619,737, divided as follows:—Ardent spirits, 13,771,686; wines, 2,388,752; beer and ale, 52,619,737. The cost of British spirits, £20,811,155; foreign and colonial, £8,415,217; ardent spirits, £29,226,426; wines, £10,794,384; malt liquor, £48,599,086; total, £88,619,876, which was £23,000,000 more than the gross public expenditure of the United Kingdom, one-third the value of their imports, and considerably more than half of all the British produce exported in 1865, nearly eight times the amount paid into all the savings banks, and twice the amount of capital remaining in them at the close of the year, twice the amount of railway receipts, six times the rateable value of property in the metropolis, and eighty times the annual incomes of the charitable and religious institutions whose head quarters were in the metropolis. To have a complete estimate of the cost they ought to include the cost of pauper, criminal, hospital, and lunatic expenses, attributable to the use of alcoholic drink, and the amount of labour lost by its indulgence.

Professor LEVI said it was probable that £60,000,000 or two-thirds of this expenditure was increased by the working classes, which constituted two-thirds of the population, and their income was estimated at from £350,000,000 to £400,000,000 per annum; 15 per cent. therefore of their limited incomes was devoted to that which was, to say the least, unnecessary, and in many cases very injurious. The paper was telling, and suggestive of grave reflection.

Mr. CANE said he had mixed very much with the working classes, from whom he had learned that they spent as much as one-fourth for drink, and, as a natural consequence, directly they were laid aside by illness, they applied to the parish for relief for themselves and their families, which was a very discreditable thing for the country.

Mr. WILLIAMS deprecated the habit of experiments upon and enquiring into the social habits of the working classes.

On the Violation of the Principles of Economic Science caused by the Law of Distraint for Rent, by Mr. C. Tebbutt.

The author contended that the law of distraint for rent was a violation of the principles of Economic Science, especially as regarded land, the owner of which often had a security not possessed in houses, in the investment of capital, which was irremovable. The law secured rent to the landlord, even if he had so neglected his duty as to choose for his tenant a man utterly without skill, character, or capital. The violation of its equity was equalled by its impolicy, as it affected the occupation and cultivation of the soil. Ownership was a great inducement to the development of the cultivation of the soil; but in England little land was owned by its cultivator. It was needful that in an arrangement between landlord and tenant nothing should interrupt the play of motive and interest. Yet at this point in stepped the law of distraint, giving absolute security to the landlord, and removing from his mind that pressure of motive and interest which rendered it needful for him to have the best tenant he could obtain, and to make every reasonable concession to obtain this end. The whole equity of the transaction was lost; little weight was given to the skill and capital of the tenant; and the landlord was enabled, without danger of the loss of rent, to bring in any man of straw to compete with the tenant of capital and skill. A lower standard of cultivation prevailed generally than would be the case if the disturbing law were entirely abolished.

On the Hindrances to the Success of Popular Education, by the Rev. C. Sewell.

These were two-fold—those which arose on the side of the teacher, and those which lay with the children taught. Thirty years had elapsed since a conviction that something must be done, rather than a knowledge of what was best to do, had made education a matter for English statesmen to handle. It was then agreed that the State should assist, and by so doing, improve and extend the endeavours to educate the poor which the religious bodies have ever been found to make. The step from assisting, to advising and directing, was a short one, and the responsibility of popular education speedily devolved on the State. A review of the past thirty years' endeavours went to show that the first branch of the task had engaged attention almost exclusively, the only requirement made by the nation being that popular education should cost as little as possible, which would be perfectly right if it were backed up by an equally sincere determination that education should really become popular in every sense of the word. The organization in this country for giving primary education, was now as complete in England as in foreign countries, and the want of success must not be charged on the system, but on the administration, which was destitute of organization. One great secret of the success of popular education abroad was, that the preparation of a system of instruction, and the preparation of the people to receive it and use it, had gone hand in hand. In Prussia and Holland, education had acquired the character of a municipal institution, because it was one of the fundamental principles of home policy. It was the statesman's duty to supply this organization, as it was the educator's to furnish a system and methods of instruction. The latter part had been done, but the former had not even been attempted. The writer then traced the acceptance by the State of the organization of the religious bodies, instead of imposing one of her own, acknowledging that, though there had been great success, the nation had not been roused to a desire for education. The State and the promoters of schools were working together for the same end, but it was with a certain jealousy of each other. In his opinion, it would

be no unworthy occupation for a statesman to win the Legislature to sanction an ordinance that would compel every part of the country to provide the means of education for the poor. The time had not yet come for subordinating all organizations for popular instruction to the secular authority of the State, and the increased zeal of the religious bodies might stave off the necessity for such a course; but if it could be accomplished by general consent, one at least of these hindrances would be removed. They had buildings and teachers, but they had not secured the presence of those for whom they were intended. In large towns, vast multitudes of children never go to school, and both in town and country attendance was very irregular. Suggestions were then made for regulating the attendance at school, and the right of the State to remove and control carelessness and short-sightedness on the part of parents urged and vindicated.

Sir J. BOWRING gave some facts of a very interesting character, as to the state of education in China, where it was conducted on an invariable system, without respect to rank or age, and comprehended an elaborate plan for carrying out competitive examinations. The successful candidates were invariably elected to some high office in the State. In less advanced countries than Great Britain education was rendered compulsory, and the happiest results followed to both men and woman. In France a variety of important operations were carried on by woman, and in referring to the commerce of that country the speaker incidentally bore testimony to the value of the decimal and metrical systems. As encouragements for promoting popular education, he mentioned various instances in which a little education had been turned to practical and profitable account by men in very humble ranks of life.

The Rev. W. CAINE said the canon of the Church of England provided that the old and young should be taught by her ministers, and he had done so for two years. He deprecated the encouragement of education by and from the State, and thought that they should rather remove the obstructions placed before the people, by taking temptations out of their way which prevented them having their children properly educated.

On the practicability of employing a Common Notation for Electric Telegraphy, by Mr. J. G. Joyce.

The PRESIDENT said he would not read this paper. The writer suggested numbers instead of words, but he had based it on the Latin language, and it would be difficult to understand.

On the diminution of Accidents in Coal Mines since the appointment of Inspectors, by Mr. G. Senior.

The author showed that the saving of life from gas explosions in pits amounted to nearly fifty per cent., and from accidents in the shafts to forty-six per cent. In raising ninety million tons of coal the loss of life in 1864 amounted to one in 354 persons employed, and to one for each 110,000 tons produced.

Section G.—MECHANICAL SCIENCE.

On a New Arrangement for Picking up Submarine Cables, by Mr. Fleming Jenkins.

The object of the machine, exhibited by the author, was to regulate the strain upon the cable which was being hauled in, and this was done in an ingenious manner, by means of various weights and levers acting upon a break drum, which regulated the speed with which the cable was wound up. As the strain upon the cable increased, the motion of the drum decreased, and if the strain went beyond a certain point, the cable, instead of being paid in, was permitted to run out, but in all cases the strain upon the cable remained the same. Hitherto, it had been found impossible to bring a cable to the surface during bad weather, but by the use of this machine, a cable might be hauled in with perfect safety, while the heaviest sea was running.

On the Application of the Expansive Power of Moistened Vegetable Matter to the Raising of Weights, by Admiral Sir E. Belcher.

The author said at various periods of his life necessity had compelled him to improvise from materials at hand such forces as would meet the emergency, in many instances where no mechanical appliances could be obtained. It might appear to the uninitiated, or to those who have never been reduced to their wit's end, that to construct a raft and turn a ship of 600 tons from lying on her broadside to an upright position is an easy matter. He found himself in such a predicament, and with 200 men at command it seemed very simple—but

150 were suddenly prostrated by fever, and under the equator, officers and men numbering about fifty, compose but a small force to trundle spars of 2 feet or more diameter, and about 150 feet long. So, having formed their skeletons and passed their lashings, they found them stretched. Still, to get things in place, it occurred to him that the spars singly, if passed separately under those already secured, would gradually take up the slack, and exert their whole floating power some feet below water, instead of half immersed at the surface, and their simple effort to rise superseded lashing. Single spars were worked in this manner by two or three men, and he found that each addition thus applied gave him a lift of 2,100 lbs. In fact, he succeeded by the gradual addition of timber beneath his raft. Once he had occasion to try the powers of bamboos. A bamboo which had its central joint about three and a half inches, had an internal cavity of three inches; its own weight was 14 ounces per foot, and its displacement was equal to 3.9 lbs., or had a floating power of 3 lbs. 2 ounces per foot. Thus of 50 feet bamboo, weighing about 45 lbs., would buoy 156 lbs.; and he was informed lately by a Spanish admiral that a vessel which had sunk was floated by forcing bamboos through her, between decks and holds (by divers), and being towed into shallow water, pumped out, and recovered. Many of the tropical woods are very light, and yet do not imbibe water readily. Now, in attaching casks under vessels for diminishing their draught, we frequently notice that by the stretching of the lashings they are half out of water, consequently half their buoyancy is lost, and this arises from nearly filling them with water, bringing the lashings hand taut, and then pumping them out. But the more scientific mode of proceeding would be to lash them, bung downwards, well under water, and expel the water by forcing air in by an inverted syphon. On the occasion of the hanging of Her Majesty's ship Northumberland on the slip at Millwall, it occurred to him that a very material saving of expense would arise from the adoption of some of these simple powers simply applied. Among other agents, the quiet but enormous power of the expansion of peas occurred to him. We have no data on which even to guess at their expansive forces; but in 1812 he saw it tried on a skull to part the sutures, which it did most beautifully. He suggested the application of their power to the authorities, but, as might be expected from men who never had seen it tried, naturally enough it was derided. Yet, by a very simple procedure, instead of the poor 62.5 lbs. affording a cubic foot of air—minus, too, the weight of materials composing a caisson—he obtained from a cubic foot of peas a power to lift (140 lbs. to 1 gallon) 7,125 lbs. equal to 3 tons 3 cwt. 2 qrs. 13 lbs. The author then detailed some other experiments which were exhibited to the section.

On Steam Boiler Investigation, by Mr. A. Dircks.

Among the many causes to which steam boiler explosions are attributed, we may mention—1. Deficiency of water in the boiler. 2. Overheating of boiler-plates. 3. Unnatural strain on the rivets. 4. Imperfectly manufactured, or over-worn or corroded plates. 5. Deposits of salt, sand, mud, or scales of carbonate or sulphate of lime, &c. 6. Collapse of internal tubes or flues. And 7. Over-loading, or fastening down of the safety-valve, or its becoming accidentally fixed. No boiler of its kind, whether stationary, locomotive, or marine, can be too simple in construction; complication of parts being invariably fatal to economy in working. As an object of strength, it would be well if all boilers were made of either copper or steel, but here again economy suggests the use of iron. Strength, again, with consequent safety, might be obtained by increased thickness of metal, but we should thus obtain one desirable end at the loss of another—economy—in the use of a thick plate boiler. Therefore, it follows that we must sacrifice something of the safety to be thus obtained to provide a sufficiently efficacious steam-generating vessel, whether for the mill, the rail, or the ocean. The experiments of Mr. William Fairbairn, Sir William Armstrong, and others, afford evidence of the necessity of making experiments on a large scale, conducted with every possible assistance for securing accuracy on points of interest, whether mathematical, mechanical, or chemical. Experimental results might be obtained under proper arrangements for the bursting of a boiler of approved construction with every appliance deemed requisite for security, under ordinary circumstances. And, again, a similar boiler might be tried with a presumed defective boiler plate, and then subjected to the destructive test to ascertain what results would follow. Also, boilers might be tested with clear, salt, or muddy calcareous waters, to arrive

at some practical results in regard to their use. But it is evident that such a course of experiments being once established an infinity of trials would suggest themselves, and the results would not fail to be of the highest interest to the public, the manufacturer, and men of science generally.

Mr. W. FAIRBAIRN said it was most important that every possible endeavours should be made to prevent the explosion of steam boilers. An association had been established in Manchester for the prevention of such accidents, and they had collected a number of facts relating to them. The only effectual precaution that could be taken was to have frequent periodical inspection of the boilers. Similar associations should be established in other towns. He did not approve of a system of boiler insurance, as it offered a premium to a man to blow up his boiler.

Mr. GALLWAY attributed the explosion of boilers to electricity.

Mr. BRAMWELL said that the principal reason of the explosion of boilers was because they were designed and built by persons who were ignorant of the principles upon which they should be constructed. He thought the peculiar appearances presented in some boilers, called "scoring," might be due to the effect of galvanic action.

Mr. HUGHES, who had been one of the inspectors of boilers under the Manchester Association, attributed the explosion of boilers to carelessness. The only way to prevent such accidents was to have the boilers periodically inspected by competent inspectors.

REPORTS OF LEARNED SOCIETIES.

QUECKETT MICROSCOPICAL CLUB.—September 28th. Mr. W. Hislop in the chair.—A paper was read by Mr. R. T. Lewis—"On some of the Microscopic Effects of the Electric Spark,"—detailing a number of experiments made by him between December, 1865, and the present time. They were suggested, in the first instance, by the circumstance of having placed a card which had been perforated by powerful induction sparks upon the stage of the microscope, to examine the raised burrs produced, when he was surprised to observe that all such holes as were clear were of pentagonal shape. In consequence of this observation, pieces of paper and card of various kinds were procured, and perforated by sparks of various lengths from different induction coils, in all of which cases the pentagonal form of hole prevailed, and the same result was also found when discharge sparks from a Leyden Jar charged with frictional electricity were employed. Subsequently, a contrivance (which was described) enabled these experiments to be repeated upon the stage of the microscope. The effect of sparks upon paper chemically treated, the leaves of plants, mica, thin glass, film of egg, &c., was described, from which it appeared that the perforations were generally five-sided, without regard either to the shape of the points between which the sparks were discharged, or to the texture of the material perforated. The paper was concluded by a few remarks to the effect that electricity thus brought under the microscope would be found to afford both amusement and instruction, whether in connection with the use of the Micro-Spectroscope, or in observing the effects of Electrolytic Action.—Eight members were elected. Among other objects exhibited was one of very great interest, viz., the ooze from the bottom of the Atlantic, brought up with the cable of 1865, composed of very much the same elements as those found in the Barbadoes earth.

THE PUBLISHING SEASON.

The prospects of the coming season were foreshadowed as long ago as the 1st of September in THE READER, where a long list of Messrs. Longmans' announcements will be found. Messrs. Rivingtons followed in their wake last week, and now our columns are scarce long enough to hold the October bill of intellectual fare. If we cannot insert every title this week, we hope neither readers or publishers will interpret our necessity as a sign that we relegate some of the best dishes to a place below the salt, or that we presume to say on which course the public should break its fast:—

MESSRS. MACMILLAN and Co. announce—"The Iliad of Homer," Translated into English Accentuated Hexameters, by Sir John F. W. Herschel, Bart., with Vignette by Jeens;—"Legendary Fictions of the Irish Celts," collected by Patrick Kennedy;—"The Fountain of Youth," from the Danish of Frederik P. Muller, by H. W. Freeland;—a New Edition of "Gacetas at Truth," by Two

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Brothers;—"The Poetical Works of John Milton," edited by Professor Masson, 2 Vols., uniform with the Cambridge Edition of Shakespeare;—"The Logic of Chance: an Essay on the Province and Foundation of the Theory of Probability, with a special reference to its application to Moral and Social Subjects," by the Rev. J. Venn;—"A Second Edition of 'St. Paul's Epistle to the Galatians,' by J. B. Lightfoot;—"St. Paul's Epistle to the Philippians," by the same;—"A History of the Canon of the New Testament during the First Four Centuries," by B. Foss Wescott;—"A Shilling Book of New Testament History, for National and Elementary Schools," by the Rev. G. F. Maclear;—"Plane Trigonometry for Beginners," and "Mechanics for Beginners," by I. Todhunter;—"Examination Papers in Arithmetic," by the Rev. Barnard Smith;—"New Edition of 'Roby's Elementary Latin Grammar,' by G. B. Airey, Astronomer-Royal; and the same house are preparing to add to their Globe Editions (uniform with the Globe Shakespeare) the Poetical Works of John Milton (edited by Professor Masson), the Poetical Works of Robert Burns, and the Poetical Works of Sir Walter Scott.

MESSRS. SAMPSON LOW & Co. announce—"Two Centuries of Song, or Melodies, Madrigals, Sonnets, and other Occasional Verse of the English Poets of the last Two Hundred Years," with Critical and Biographical Notes, by Walter Thornbury, Illustrated;—"An Illustrated Edition of 'Bishop Heber's Hymns';—"Elegant Sonnets, being Selections, with an Essay on Sonnets and Sonneteers," by the late Leigh Hunt, edited from the original MS., by S. Adams Lee, 2 Vols.;—"Milton's Paradise Lost," with the original Steel Engravings of John Martin;—"A Concordance to Milton's Poetical Works," by Charles D. Cleveland;—"The Masque at Ludlow, and other Romanesques," by the Author of "Mary Powell";—"A Summer in Leslie Goldthwaite's Life," by the Author of "The Gayworthys";—"The Chimney Corner," by Mrs. H. B. Stowe;—"Varia," by the Author of "The Gentle Life";—"Celebrated Letters," selected by W. M. Thomas;—"The Countess of Pembroke's Arcadia, by Sir Philip Sidney," by the Author of "The Gentle Life";—"Life in the Pyrenees," by Henry Blackburn, with upwards of 100 Illustrations by Gustave Doré;—"The Conspiracy of Gianluigi Fieschi, an Episode in Italian History," by M. De Celesia;—"The Mission of Great Sufferings," by Elihu Burritt;—"Faith's Work Perfected, or Francke's Orphan-Home, the Rise and Progress of the School Houses of Halle," from the German of Francke, by W. L. Gage;—"The Charities of London," New Edition;—"A Dictionary of Photography," re-written by Professor Dawson and Thos. Sutton;—"Richmond and its Inhabitants, from the Olden Time," by R. Crisp;—"A New Edition of 'The Toilers of the Sea,' by Victor Hugo, with a frontispiece by Doré;—"The Fire Ships," a story by W. H. G. Kingston, re-edited for young people, with Illustrations;—"Hobson's Choice," a Story by Dutton Cook;—"And 'Great Fun Stories, told by T. Archer and T. Hood to Edward Wehnert's Pictures," printed in colours.

MESSRS. HURST & BLACKETT announce for October and November—"A Book about Lawyers," by J. C. Jeaffreson, Barrister-at-Law, 2 vols., 8vo.;—"Annals of a Quiet Neighbourhood," by George Macdonald, M.A., Author of "Alec Forbes," &c., 3 vols.;—"Madonna Mary," by Mrs. Oliphant, 3 vols.;—"Lights and Shadows of London Life," by the Author of "Mirk Abbey," &c., 2 vols.;—"Christie's Faith," by the Author of "No Church," "Owen," &c., 3 vols.;—"A Winter with the Swallows," by M. Betham Edwards, 1 vol., with Illustrations;—"A cheap edition of 'Christian's Mistake,' by the Author of 'John Halifax,' Illustrated by Sandys (forming the New Volume of Hurst & Blackett's Standard Library);—"My Pilgrimage to Eastern Shrines," by Eliza C. Bush, 1 vol. with Illustrations;—"Kingsford," by the Author of "Son and Heir," 2 vols. The same publishers have also in preparation New Works by the Hon. Mrs. Norton, the Author of "John Halifax," Miss Amelia B. Edwards, Miss Kavanagh, Mr. Hepworth Dixon, Mr. Mark Lemon, and the Rev. J. C. M. Bellew.

Mr. NEWBY announces for immediate publication—"A Narrative of a Journey to Morocco in 1863 and 4," by the late Thomas Hodgkin, M.D., F.R.G.S. Dedicated (by permission) to Sir Moses Montefiore, Bart.;—"A History of Irish Periodical Literature," by R. Madden, M.R.I.A., Author of "Travels in the East";—"Some Work of Noble Note," by W. Davenport Adams, Author of "Memorable Battles in English History," &c.;—"The Spas of Germany France, Italy, &c.," by

J. M. Madden, M.D., Author of "On Change of Climate";—"Our Blue Jackets Afloat and Ashore," a Novel, by C. F. Armstrong, Author of "The Two Midshipmen," &c.;—"Philip the Dreamer," a Novel, by the Author of "Maple Hayes," &c.;—"The Rival Doctors," by F. Trollope, Author of "An Old Man's Secret," &c.;—"Beating to Windward," a Novel, by the Hon. Charles Stuart Savile, Author of "Leonard Normandale";—"The Master of Wingbourne," a Novel;—"The Story of Nelly Dillon," by the Author of "Myself and my Relatives";—"Hetty Gouldworth," a Novel, by George Macaulay;—"Lost at the Winning Post," by the Author of "A Heart Twice Won";—"New Nobility," a Novel;—"Landmarks of a Life," a Novel, by Miss Austin.

MESSRS. JOHNSTONE, HUNTER & Co., of Edinburgh, announce—"Sketches of Scripture Characters," by the Rev. Andrew Thomson, D.D., with illustrations;—"Horace Hazelwood, or Little Things and other Tales," with numerous Illustrations;—"Rosa Lindesay, the Light of Kilmain," by the Editor of "The Children's Hour," Illustrated;—"Melvyn House, the Home of the Davenports," Illustrated;—"The Domestic Circle, or the Relations, Responsibilities, and Duties of Home Life," by the Rev. John Thomson, Illustrated;—"Alice Thorne, or a Sister's Love," Illustrated;—"Bill Martin's Tales of the Sea," by Mrs. George Cupples, Illustrated;—"Short Stories to Explain Bible Texts," &c. The same house have issued Juvenile Illustrated Books, under the titles of the Shilling, Eighteen-penny, Half-crown, and Three Shilling Series.

MESSRS. SEELEY, JACKSON & HALLIDAY announce—"A Sequel to Ministering Children," by Maria Louisa Charlesworth;—"English Children, as painted by Sir Joshua Reynolds, an Essay on some of the Characteristics of Reynolds as a Painter, with especial reference to his Portraiture of Children," by F. G. Stephens, 4to., with fifteen Photographs;—"Apostles and Martyrs, brief Meditations on the Acts of the Apostles," selected from great Divines, with twelve Photographs after Raffaele and other Masters, uniform with Salvator Mundi;—"The South After the War, or Notes on the Track of General Sherman," by John H. Kennaway;—"Christianity in New Zealand," by the Right Rev. W. Williams, Bishop of Waiapu;—"Half-hours with French Authors, Short Passages from Prose Writers translated into English";—"Copsley Annals Preserved in Proverbs," by the Author of "Village Missionaries";—"The Knights of the Frozen Sea, a Narrative of Arctic Adventure and Discovery," by the Author of "Harry Lawton's Adventures";—"The Cumberstone Contest, a Story for the Young," by the Author of "A Battle Worth Fighting";—"My Father's Hand, and other Stories and Allegories for the Young," by Mrs. Carey Brock;—"Aunt Annie's Stories; or, The Birthdays at Gordon Manor," &c.

MESSRS. HOULSTON and WRIGHT announce—"Tales of the Chimney Corner," forming the first volume of the Illustrated Shilling Library. This is a series of tales written by popular authors, each volume of which will contain six illustrations on wood;—Also, "Tales of the Jacobites; and Martyrland, or Perils of the Persecution."

MESSRS. CHARLES GRIFFIN & Co. announce a new edition of "The Book of Dates, brought down to December, 1865";—Also a new edition of "The Stratford Shakespeare," edited by Charles Knight, in 6 vols.

MISCELLANEA.

In this month's *Fraser* we read of a literary treasure recently discovered in the Palazzo Riccardi of Florence. It consists of four large and thick manuscript folio volumes, containing the history of the banking operations carried on by the Peruzzi family from 1308 to 1346. With the Peruzzi were associated the Pardi, Scali, and Acciajoli. They lent enormous sums to our Edward III. which he could not repay, and on the 17th January, 1345, they failed—Edward, at that period, owing them about £76,000,000 sterling of present money. These records are to be edited by a descendant of the Peruzzi's. We may mention that the Bardi and Acciajoli lent money, also, to St. Edmundsbury Abbey, and that copies of the transactions are still to be found in the various MSS. of that house, several of which are preserved in the Cambridge University Library and the British Museum.

The *Fortnightly Review* has been compelled to deviate from its fundamental rule—that of inserting no article to which the name of the writer is not appended. "The Army: by a (late) Common

Soldier," is the title of an anonymous paper in the number for the first of October.

THE Social Science Association will join to-day in celebrating the opening of the Co-operative Cobden Memorial Mills at Salden.

A COPY of the New French Pharmacopœa has been presented to the Emperor by the Minister of Public Instruction. This work has been published by order of the Government, and has been drawn up by a commission who have devoted three years to its compilation. The book previously in use was published in 1837, and was very defective. In the new Pharmacopœa, it has been attempted to make the formulæ correspond as much as possible with those in use in the adjoining countries, and a special chapter has been devoted to the receipts taken from foreign Pharmacopœas. The editors aspire to an international work of this kind, and they say, with some justice, that it would be an advantage if there was a generally accepted standard of strength of very poisonous or very active medicines. But, before this can be accomplished, we must have a universal system of weights and measures.

THE municipality of Brussels is now engaged in the preparation of shaded maps, showing by tints of various depths the number of deaths during the recent epidemic in various parts of the town. It is also proposed to extend this to the previous epidemics. The object is to show in a clearer manner than by numerical tables, the unhealthy districts; and, if possible, to discover and remove the cause of such unhealthiness.

SOME of the French papers have announced the opening of an exhibition of the most important public records and ancient seals at Paris. The *Moniteur* contradicts the report but states that such a collection is now in process of formation, but that it will not be opened until the exhibition of 1867.

WE suggest that a series of autographs of English Sovereigns which the Record Office could supply from Richard II. downwards would be a very interesting companion to the collection of Great Seals of England now in the British Museum.

THERE has been much talk lately about Government inspection as applied to railways and steamboats, and opinions are divided as to whether the present system should continue, whether it should be made stricter, or whether Government control should be done away with altogether, leaving the railway or steamboat companies liable as at present to an action for negligence or for using bad materials. So far as railways are concerned, the Board of Trade grants a certificate, without which no railway can be opened for passenger traffic, stating that the line is properly constructed, but the Board takes no further notice of the company, leaving it entirely to its own devices. It is true that when a serious accident happens, an inspector is sent down to make a report, which is published generally some months afterwards amongst the parliamentary papers. But the Board has no sort of control over the company after it has once set to work. The boilers of passenger steamers are also inspected by the Whitehall authorities, and, should an explosion take place, the owners exhibit their Board of Trade certificate to the coroner and jury, who are told that, in the face of such a statement, it is morally impossible for any boiler to blow up, except "accidentally," and the verdict is returned accordingly. The coroner thanks owners for the facilities which they have given in the investigation, jury thanks coroner for his patience and courtesy, and the officer, of course, returns thanks in a similar strain. So the farce ends. The most absurd development of the system occurred the other day. Our readers will, doubtless, recollect the explosion on board the "Talbot," in Morecombe Bay, some weeks back. It now turns out that the Board of Trade officer who inspected and passed the boilers was also the manufacturer of them. In the first place, the appointment of a boiler-maker as inspector is bad enough; and, in the second place, one would have thought that a person possessed of an ordinary amount of decent feeling would have requested an impartial person to inspect these particular boilers. What should we think of a judge who tried a cause in which he himself was deeply interested; or of an auditor who passed his own accounts? We do not for a moment intend to insinuate that Mr. Coates, the person in question, acted otherwise than impartially in the matter. We do say, however, that an ordinarily prudent man would hesitate before running the risk of being placed in such an awkward position as that now occupied by Mr. Coates.

WITH reference to a paragraph that appeared in our Miscellanea last week touching Mr. E. Peacock's list of Church Furniture, in Lincolnshire,

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being not the earliest one, but much later than those at Caius College, Cambridge, Mr. Peacock says:—"The newspapers are wrong, not I. I never said that my list of Church Goods, in Lincolnshire, was the oldest—never thought such a thing, as I have seen many of earlier date. What I did say, and what I still stick to, is, that Nos. I. and II. of my appendix are the earliest list now known. Their date is before 1255. The Caius lists are, I imagine, about 150 years later than that."

Mr. and Mrs. GERMAN REED, with Mr. JOHN PARRY, will re-open the Royal Gallery of Illustration on Monday Evening, the 15th inst., with the "Yachting Cruise" and "The Wedding Breakfast."

THE discovery of M. Leon Foucault of obviating the concentration of the Heat-Rays in solar observations by sheathing the objective of a telescope with a very thin metal layer, the value of which was immediately recognised by THE READER, has been pronounced by M. Le Verrier to be of the highest possible importance. M. Foucault's experiment was made upon a telescope with a very small objective. Since then, further experiments have been made on one of 9 inches, which were quite satisfactory. The solar rays refracted by the objective sheathed with the metal have a very peculiar blueish tint, which made M. Wolff imagine that a considerable proportion of the calorific rays might possibly have been eliminated. The rays were examined with a spectroscope, and were found to be deprived of their extra redness, and inclined to be of a very deep-blue colour. Clearly the calorific rays had been stopped in their passage. Theory thus afforded the most brilliant confirmation of experience.

A LIFE of Junius Brutus Booth, father of the assassin, has been published at New York, written by his daughter.

Mr. Newby's New Publications.

NARRATIVE of a JOURNEY to MORRICO in 1863-4. By the late THOMAS HODGKIN, M.D. Illustrated (from his Sketches taken on the spot) with Chromo-lithographs in the best style of the Art; together with a Medallion Portrait of the Author, and a Portrait of Sir Moses Montefiore, Bart. In 1 vol. imperial 8vo, price 21s.

N.B.—The names of the friends and admirers of the late Dr. Hodgkin who order Copies of the Work not later than the 30th of October, if sent to the Publisher, will be inserted in the volume.

HISTORY OF IRISH PERIODICAL LITERATURE. By R. MADDEN, M.R.I.A., Author of 'Travels in the East.' In Demy 8vo. [In November.]

NEW NOVELS AT EVERY LIBRARY.

TRODDEN DOWN. By the Author of "Kate Kennedy," "Common Sense," &c. Second Edition. "Nothing has come from Mrs. Newby's pen better than this narrative of a woman's trial, error, penitence, and atonement."—*Athenaeum*.

"It will firmly establish its author in the same rank as Miss Mullock, and the author of 'Adam Bede.'"—*Globe*. "The book is a good book, and full of real interest."—*Church and State Review*.

"We have great pleasure in calling attention to the best novel of the year."—*Harrogate Advertiser*. "The story is told in a most affecting manner."—*Observer*.

The STORY of NELLY DILLON. By the Author of "Myself and my Relatives." "A vigorous tale, most true in its sketches of Irish life."—*Dublin Packet*.

"It is written with the finished simplicity of an experienced storyteller."—*Advertiser*.

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